Designation of Critical Habitat for West Coast Salmon and Steelhead

FINAL 4(b)(2) Report

August 2005

NATIONAL MARINE FISHERIES SERVICE
Northwest Region

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EXECUTIVE SUMMARY

Introduction

This report contains NOAA Fisheries, Northwest Region's recommendations for designating critical habitat under section 4 of the Endangered Species Act (ESA) for 12 salmon and steelhead evolutionarily significant units (ESU) that are listed under the ESA as of the date of the final designation (August 15, 2005). We developed our recommendations consistent with statutory requirements and agency regulations. The ESA and supporting regulations emphasize the central role of habitat in endangered species conservation. It defines critical habitat as specific occupied areas that contain physical or biological features that are essential to conservation and that may require special management considerations or protection, and specific unoccupied areas if the area itself is essential for conservation.

ESA section 4 requires us, using the best scientific information available, to designate critical habitat to the maximum extent prudent and determinable at the time a species is listed, but in any event not more than one year later, to the maximum extent prudent, based on such information as is available at the time. We are precluded from designating critical habitat on military lands covered by an Integrated Natural Resource Management Plan if the Secretary has determined in writing that the plan benefits the species. Before designating any particular area as critical habitat, we must consider the economic impact, impact to national security, and any other relevant impact of designation. The agency has discretion to exclude an area from designation if it finds that the benefits of exclusion outweigh the benefits of designation, unless exclusion will result in extinction of the species. We have discretion in how we balance benefits of designation and exclusion. The statute does not require that any areas be excluded.

Once critical habitat is designated, section 7(a)(2) requires federal agencies to ensure any actions they authorize, fund or carry out are not likely to result in the destruction or adverse modification of designated critical habitat. Section 7 also requires federal agencies to ensure such actions do not jeopardize the continued existence of the listed species.

The statute and supporting regulations require us to identify areas meeting the definition of critical habitat; consider the impacts of designation on economic, national security, and other relevant interests; and weigh the benefits of designation against various potential benefits of exclusion. This must be done in a limited time, using best information available during that time, and with public notice and participation. In designating critical habitat for the 12 salmon and steelhead ESUs, we sought an approach that adhered to these statutory requirements and ultimately exercised the agency's discretionary authority within the framework of congressional, executive and agency policy.

Identify specific areas meeting the definition of critical habitat

Areas that meet the definition of critical habitat include specific areas: 1) within the geographical area occupied by the species at the time of listing, if they contain physical or biological features essential to conservation, and those features may require special management considerations or protection; and 2) outside the geographical area occupied by the species if the agency determines that the area itself is essential for conservation. To determine "the geographical area occupied by the species at the time of listing" we used the best available data, compiled by the fish and wildlife agencies of Oregon, Washington and Idaho. We determined the physical or biological habitat features essential to salmon and steelhead conservation based upon their unique life history, focusing on "primary constituent elements" as directed by our regulations. Based on the biology and population structure of the species, and the characteristics of the habitat it occupies, we selected watershed boundaries to delineate "specific areas" within the meaning of the statutory definition. We verified the presence of physical or biological features and determined whether they may require special management considerations or protection. Finally, we considered whether we had sufficient information to determine whether any unoccupied areas are essential for conservation. We determined we had sufficient information for three areas for one ESU totaling eight stream miles.

Consistent with recent amendments to the ESA, and in consultation with the Department of Defense, we identified 12 military areas with Integrated Natural Resource Management Plans. We determined, in writing, that these plans as implemented provide benefits to the listed ESUs that are equal to or greater than what we would expect to achieve in a section 7 consultation. These areas are ineligible for designation.

Conduct a section 4(b)(2) analysis

Section 3(5) defines critical habitat as "specific areas," while section 4(b)(2) requires the agency to consider certain factors before designating any "particular area." Depending on the biology of the species, the characteristics of its habitat, and the nature of the impacts of designation, "specific" areas might be different from, or the same as, "particular" areas. For this designation, we analyzed two types of "particular" areas. Where we considered economic impacts, we used the same watershed-based delineation that we used for "specific" areas (the occupied stream reaches within a watershed). This delineation allowed us to use a cost-effectiveness framework for recommending economic exclusions. Where we considered impacts on national security, impacts on Indian tribes, and impacts on our program to promote voluntary conservation agreements, however, we instead used a delineation of "particular" areas based on ownership or control of the area. This delineation allowed us to compare and balance the benefits associated with land ownership and management.

The use of two different types of areas required us to account for overlapping boundaries (that is, ownership may span many watersheds and watersheds may have mixed ownership). The order in which we conducted the 4(b)(2) balancing became important because of this overlap. To ensure we were not double-counting the benefits of exclusion, we first considered exclusion of particular areas based on land ownership and determined which areas to recommend for exclusion. We then considered economic exclusion of particular areas based on watersheds, with the economic impact for each

watershed adjusted based on whether a given type of ownership had already been recommended for exclusion.

Our previous designation of critical habitat for these ESUs was vacated by court order following a challenge to the designations (*National Association of Homebuilders v. Evans,* No. 00-CV-2799 (D.D.C.)) (*NAHB*). In the earlier designations we concluded there would be no impact from the designations, because we were only designating occupied areas. Federal agencies must ensure their actions are not likely to result in the destruction or adverse modification of critical habitat and are not likely to jeopardize the species' continue existence. In occupied habitat, we had reasoned that any action that adversely modifies critical habitat would also jeopardize the species, thus there would be no impact of designation beyond the impact already imposed by the listing and the accompanying jeopardy requirement.

While the case against us was pending, the Court of Appeals for the Tenth Circuit vacated the U.S. Fish and Wildlife Service's critical habitat designation for the southwestern willow flycatcher (*New Mexico Cattle Growers Association v. U.S. Fish and Wildlife Service*, 248 F.3d 1277 (10th Cir. 2001)) (*NMCA*). The Tenth Circuit found the Service's approach rendered meaningless Congress's requirement that economic impacts be considered in the designation process. The Court concluded that, to give "effect to Congressional directive," the Service must analyze the full impacts of designation, regardless of whether those impacts are co-extensive with other impacts (such as the impact of the jeopardy requirement). Given the decision in the Tenth Circuit, and the similarity between the Fish and Wildlife Service's analysis and ours, we sought a voluntary remand of the designations, which the District Court in our case granted.

On remand, we have examined our extensive consultation record with these as well as other ESUs of salmon and steelhead. Based upon that record, we could not discern a difference between the impacts of applying the jeopardy provision versus the adverse modification provision in occupied habitat. Given our inability to detect a measurable difference between the impacts of applying these two provisions, the only reasonable alternative seemed to be to follow the recommendation of the Tenth Circuit and measure coextensive impacts. Because section 4(b)(2) requires a balancing of competing considerations, and because our record did not support a distinction between impacts resulting from application of the adverse modification provision versus the jeopardy provision, we have concluded that we must uniformly consider coextensive impacts and coextensive benefits. To do otherwise would distort the balancing test contemplated by section 4(b)(2). We recognize that, in reality, excluding an area from designation will not likely avoid all of the impacts we considered, because the section 7 requirement regarding jeopardy still applies. Similarly, much of the section 7 benefit would still apply because the jeopardy requirement still applies. Nevertheless, for exclusions based on economic impacts, the analytical framework we are recommending provides a meaningful comparison of the relative benefits and impacts. For exclusions based on impacts to national security, impacts to tribes, and impacts to our program to promote

voluntary conservation agreements, our balancing also takes into account the difficulty of apportioning impacts between the two different prongs of the section 7 requirement.

Analytical framework for determining and weighing impacts and benefits

The balancing test in section 4(b)(2) contemplates weighing benefits that are not directly comparable – the benefit to species conservation that comes from critical habitat designation balanced against the economic benefit, benefit to national security, or other relevant benefit that results if an area is excluded from designation. Section 4(b)(2) does not specify a method for the weighing process, nor do our regulations. Legislative history suggests that the consideration and weight given to impacts is within the Secretary's discretion (H.R. 95-1625), and section 4(b)(2) makes clear that the decision to exclude is itself discretionary.

To ensure consistency in the exercise of our regulatory authority, we first examined congressional, executive and agency guidance to discern principles that would apply across various types of impacts – economic, national security, or other impacts. We then examined congressional and executive direction relative to each type of impact we considered: impacts to national security, impacts to Indian tribes and impacts to our program for the promotion of voluntary conservation agreements. Based on our review of relevant guidance, we developed the following recommendations for the agency exercise of section 4(b)(2) discretion:

- Regarding exclusions based on **impacts to national security**, we recommend an approach that emphasizes the priority of national security while considering the degree of conservation benefit that may be lost if military lands are excluded.
- Regarding exclusions based on **impacts to Indian tribes**, we recommend an approach that emphasizes respect for tribal sovereignty and self-governance while considering the conservation benefit that may be lost if Indian lands are excluded.
- Regarding exclusions based on **impacts to the program to promote voluntary conservation agreements**, we recommend an approach that recognizes that a net increase in conservation may be achieved through voluntary landowner agreements, depending on the conservation benefit that may be lost if lands covered by voluntary conservation agreements are excluded.
- Regarding exclusions based on **economic impacts**, we recommend an approach that will efficiently reduce economic impacts and address inequities in the distribution of economic impacts, consistent with species conservation.

Determine benefits of designating each particular area

The principal benefit of designating critical habitat is that ESA section 7 requires every federal agency to ensure that any action it authorizes, funds or carries out is not likely to result in the destruction or adverse modification of designated critical habitat. Another possible benefit is that the designation of critical habitat can serve to educate the public regarding the potential conservation value of an area.

To determine the benefit of designating particular areas based on watershed delineations, we rated the relative conservation value of each area as high, medium or low. Areas rated “high” are likely to contribute the most to conservation of an ESU, while those

rated "low" are likely to contribute least (although even low-rated areas may make important contributions to species conservation). We recognized that the "benefit of designation" needed to take into account not only the conservation ratings but also the likelihood of a section 7 consultation occurring in that area and the degree to which a consultation would yield conservation benefits for the species. To address this concern, we developed a profile for a watershed that would have "low leverage" in the context of section 7. We treated this "low leverage" profile as diminishing the benefit of designation somewhat but not completely, since the educational benefits of designation would still be more important the higher the conservation value of an area, and since we cannot predict with complete accuracy all of the section 7 consultations that are likely to occur in a particular area. We thus considered the "low leverage" profile to diminish the benefit of designation by one level (that is, a "high" would become a "medium," a "medium" would become a "low" and a "low" would become "very low."

Our use of two different and overlapping scales for "particular" areas required us to adjust our analysis when we considered areas that were delineated by land ownership or control rather than by watershed boundary. In weighing the benefit of designation for these areas, we considered the number of stream miles within the area and the conservation rating of those stream miles. We also considered the types of federal activities likely to occur in the future that would undergo section 7 consultation. Our assessment of the benefit of designation thus incorporated information on what section 7 opportunities would be lost over what amount of habitat if we excluded the area.

Determine the benefits of exclusion and balance them against the benefits of designation
The balancing called for in section 4(b)(2) requires us to balance unlike values – conservation balanced against economic interests, conservation balanced against national security, or conservation balanced against trust obligations to Indian tribes. It also contemplates balancing conservation by one method (critical habitat designation and section 7 consultation) against conservation achieved by a different method (such as engaging tribes in range-wide management or engaging landowners in habitat conservation planning on private land).

Impacts to National Security
Of the 24 areas owned or controlled by the military that contain critical habitat for these ESUs, 12 are shore-based and are covered by Integrated Natural Resource Management Plans that we found would benefit the ESUs. The 12 offshore areas begin at the lower mean low tide. The benefit of designating the shore-based areas was reduced somewhat by the existence of the management plans, and the benefit of designating the offshore areas was reduced somewhat by the fact that most activities that adversely modify the critical habitat of salmon and steelhead occur above the lower low mean tide line. The Defense agencies advised us that the impact of designation would be a reduction in military readiness and that the corresponding benefit of exclusion would therefore be the maintenance of military readiness. Given the national priority on the current global war on terrorism, we determined that the maintenance of military readiness outweighed the conservation benefit that would be lost by excluding these areas that 1) are to a large

extent covered by management plans and 2) constitute two percent or less of the habitat areas for the affected ESUs.

Impacts to Indian Tribes
There are 14 tribes with Indian lands that overlap the critical habitat for seven of the 12 ESUs considered in this designation. The critical habitat on Indian lands ranges from a few miles to hundreds of miles of stream, and includes areas rated as having a high, medium and low conservation value. For some ESUs Indian lands comprise less than one percent of available habitat, and for one ESU Indian lands comprise nine percent of available habitat. The benefit of designating these areas therefore varies from tribe to tribe and ESU to ESU. Nevertheless, we concluded that the conservation benefit that would be lost by excluding these areas was outweighed by 1) the furtherance of established national policies, our federal trust obligations and our deference to the tribes in management of natural resources on their lands; 2) the maintenance of effective long term working relationships to promote the conservation of salmon and steelhead on an ecosystem-wide basis across four states; 3) the allowance for continued meaningful collaboration and cooperation in scientific work to learn more about the conservation needs of the species on an ecosystem-wide basis; 4) continued respect for tribal sovereignty over management of natural resources on Indian lands through established tribal natural resource programs; and 5) the conservation benefit that would be gained by continued tribal participation in regional salmon and steelhead management forums.

Impacts to our program to promote voluntary conservation on private lands
There are 10 landowners with current HCPs whose lands overlap the critical habitat of six of the ESUs considered in this rule. Only three of these indicated they would view exclusion of their land from critical habitat as having benefits to our ongoing relationship. Two of the HCPs contain 20 miles or less of occupied habitat and the other contains 129 miles of occupied habitat, including areas rated as having a high, medium and low conservation value. For some ESUs HCP lands comprise less than one percent of available habitat, and for one ESU HCP lands comprise 10 percent of available habitat. The benefit of designating these areas depends on the number and type of federal agency actions likely to occur, and may be reduced where activities that would undergo a section 7 consultation are already adequately covered by the HCP. The benefit of excluding these areas is the maintenance of effective ongoing relationships with the landowners, which will improve implementation of the HCPs. All three of the HCPs provide considerable benefits to conservation of the affected ESUs. We concluded that the conservation benefit that would be lost by excluding these areas was outweighed by the conservation benefit that would be gained for these same ESUs and for other listed and unlisted species by 1) improving our relationship with these landowners and implementation of the HCPs, 2) creating an incentive for other landowners to seek conservation agreements on their land, and 3) furthering our program to promote voluntary conservation agreements on private land.

Economic Impacts
Finally, we balanced the benefits of designation against the economic benefits of exclusion using a cost-effectiveness approach. For each of the 600 watershed affected by

this designation, we evaluated the conservation benefit of designation as described previously. We also estimated the coextensive economic impact of critical habitat designation (that is, the economic impact resulting from federal agencies adjusting their actions to avoid adverse modification of critical habitat, regardless of whether those modifications would also be required to avoid jeopardizing species' continued existence). This information allowed us to balance the qualitative conservation ratings of high, medium or low against the dollar impacts in a cost-effectiveness framework in which we prioritized for exclusion areas with a relatively low conservation value and high economic impact. Using this framework we identified and recommended exclusions for each ESU that range from recommendations that there be no exclusions to recommendations that as much as 30 percent of the stream miles be excluded. Cost savings range from 0 to 30 percent of total impacts. We did not recommend exclusion of any areas for economic reasons if the exclusion would significantly impede conservation, based on the policy goal of designating critical habitat consistent with West Coast salmon and steelhead conservation.

Determine whether the cumulative effect of the recommended exclusions will result in extinction of the species

Section 4(b)(2) does not allow the agency to exclude areas if exclusion will result in extinction of the species. Since we have not recommended excluding any habitat areas based on economic impacts if the exclusion would significantly impede conservation, we have determined for each ESU that the exclusion of the areas we recommend based on economic impacts will not result in extinction of the species. For each ESU we also examined all of the exclusions in combination and judged those exclusions against information developed to date through recovery planning processes as well as offsetting conservation benefits likely to be achieved by excluding Indian lands and lands covered by HCPs. For each ESU, we determined that the exclusions recommended will not result in extinction of the ESU.

INTRODUCTION

Background

This report contains NOAA Fisheries, Northwest Region's recommendations for designating critical habitat under section 4 of the Endangered Species Act (ESA) for 12 salmon and steelhead species that are listed under the ESA as of the date of the final designation (August 15, 2005).[1] It describes the methods used, process followed, and conclusions reached for each step leading to the recommendation.

Over the past several years, NOAA Fisheries has listed 27 distinct population segments, or evolutionarily significant units (ESU), of Pacific salmon and steelhead in Oregon, Washington, Idaho and California. Collectively, these ESUs occupy thousands of miles of streams in watersheds covering more than 154 thousand square miles. In 2000, NOAA Fisheries designated critical habitat for 19 of the listed ESUs (65 FR 7764, February 16, 2000). These designations were challenged in court on a number of grounds. NOAA Fisheries entered into a consent decree resolving these claims and pursuant to court order the designations were vacated. Following remand, NOAA Fisheries received a letter from environmental groups providing 60-day notice of intent to sue for not having designations in place for these 19 ESUs and one additional ESU, Northern California Steelhead. The agency entered into a consent decree with the environmental groups establishing a schedule for completing new designations. On December 14, 2004 the agency published a *Federal Register* Notice proposing designation of critical habitat for the 13 Northwest Region ESUs covered by the consent decree (69 FR 74572). Public comment was open for 90 days and there were four public hearings. Under the consent decree, a final designation must be submitted to the *Federal* Register on or before August 15, 2005. This report contains the Northwest Region's recommendations for the final designations for 12 of the 13 Northwest ESUs that are listed as of the date of the final designation.[2]

Statutory and Regulatory Requirements

The recommendations contained in this report were formulated consistent with statutory requirements and agency regulations. This section reviews the relevant statutory and regulatory provisions that guided the Region's development of recommendations.

Findings and purposes of the Act emphasize habitat conservation

In section 1 of the ESA, "Findings," (16 U.S.C. 1531(a)(1)) Congress declared that:

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[1] The 12 salmon and steelhead species include the following evolutionarily significant units (ESU) of Pacific salmon and steelhead: Puget Sound Chinook salmon; Lower Columbia River Chinook salmon; Upper Willamette River Chinook salmon; Upper Columbia River spring-run Chinook salmon; Hood Canal summer-run chum salmon; Columbia River chum salmon; Ozette Lake sockeye salmon; Upper Columbia River steelhead; Snake River Basin steelhead; Lower Columbia River steelhead; Upper Willamette River steelhead; and Middle Columbia River steelhead. (70 Fed. Reg. 37160, June 28, 2005)

[2] The final listing determination for Oregon Coast coho was extended by 6 months (70 Fed. Reg. 37217, June 28, 2005) so this ESU is not listed as of the date of final critical habitat designation.

> Various species of fish, wildlife and plants in the United States have been rendered extinct as a consequence of economic growth and development untempered by adequate concern and conservation.

Section 2 of the ESA sets forth the purposes of the Act, beginning with habitat protection:

> The purposes of this chapter are to provide a means whereby the ecosystems upon which endangered species and threatened species depend may be conserved, to provide a program for the conservation of such endangered species and threatened species, and to take such steps as may be appropriate to achieve the purposes of the treaties and conventions set forth in subsection (a) of this section.

"Critical Habitat" is specifically defined

Section 3(5)(A) of the ESA (16 U.S.C. 1532 (5)) defines critical habitat in some detail.

> (5)(A) The term "critical habitat'' for a threatened or endangered species means –
>
> (i) the specific areas within the geographical area occupied by the species, at the time it is listed in accordance with the provisions of section 1533 of this title, on which are found those physical or biological features (I) essential to the conservation of the species and (II) which may require special management considerations or protection; and
>
> (ii) specific areas outside the geographical area occupied by the species at the time it is listed in accordance with the provisions of section 1533 of this title, upon a determination by the Secretary that such areas are essential for the conservation of the species.
>
> (B) Critical habitat may be established for those species now listed as threatened or endangered species for which no critical habitat has heretofore been established as set forth in subparagraph (A) of this paragraph.
>
> (C) Except in those circumstances determined by the Secretary, critical habitat shall not include the entire geographical area which can be occupied by the threatened or endangered species (emphasis added).

"Conservation" is specifically defined

Section 3(3) of the Act defines conservation (16 U.S.C. 1532(3)):

> (3) The terms "conserve", "conserving", and "conservation" mean to use and the use of all methods and procedures which are necessary to bring any endangered species or threatened species to the point at which the measures provided pursuant to this chapter are no longer necessary.

Certain military lands are precluded from designation

In 2003 Congress amended section 4(b)(1) of the ESA to limit the designation of land controlled by the Department of Defense (National Defense Authorization Act, P.L. No. 108-136):

> The Secretary shall not designate as critical habitat any lands or other geographical areas owned or controlled by the Department of Defense, or designated for its use, that are subject to an integrated natural resources management plan prepared under section 101 of the Sikes Act (16 U.S.C. 670a), if the Secretary determines in writing that such plan provides a benefit to the species for which critical habitat is proposed for designation.

Specific deadlines limit the time and information available for making designations

Section 4(a)(3) requires NOAA Fisheries to make critical habitat designations concurrently with the listing determination, to the maximum extent prudent and determinable:

> (3) The Secretary, by regulation promulgated in accordance with subsection (b) of this section and to the maximum extent prudent and determinable -
>
> (A) shall, concurrently with making a determination under paragraph (1) that a species is an endangered species or a threatened species, designate any habitat of such species which is then considered to be critical habitat

The time for designating critical habitat may be extended pursuant to section 4(b)(6)(C), but not by more than one additional year:

> (C) A final regulation designating critical habitat of an endangered species or a threatened species shall be published concurrently with the final regulation implementing the determination that such species is endangered or threatened, unless the Secretary deems that -
>
> (i) it is essential to the conservation of such species that the regulation implementing such determination be promptly published; or
>
> (ii) critical habitat of such species is not then determinable, in which case the Secretary, with respect to the proposed regulation to designate such habitat, may extend the one-year period specified in subparagraph (A) by not more than one additional year, but not later than the close of such additional year the Secretary must publish a final regulation, based on such data as may be available at that time, designating, to the maximum extent prudent, such habitat.

Impacts of designation must be considered and areas may be excluded

Specific areas that fall within the definition of critical habitat are not automatically designated as critical habitat. Section 4(b)(2) (16 U.S.C. 1533(b)(1)(A)) requires the

Secretary to first consider the impact of designation and permits the Secretary to exclude areas from designation under certain circumstance. Exclusion is not required for any areas.

> The Secretary shall designate critical habitat, and make revisions thereto, under subsection (a)(3) of this section on the basis of the best scientific data available and after taking into consideration the economic impact, the impact to national security and any other relevant impact, of specifying any particular area as critical habitat. The Secretary may exclude any area from critical habitat if he determines that the benefits of such exclusion outweigh the benefits of specifying such area as part of the critical habitat, unless he determines, based on the best scientific and commercial data available, that the failure to designate such area as critical habitat will result in the extinction of the species concerned.

Federal agencies must ensure their actions are not likely to destroy or adversely modify critical habitat

Once critical habitat is designated, section 7(a)(2) provides that federal agencies must ensure any actions they authorize, fund or carry out are not likely to result in the destruction or adverse modification of designated critical habitat (16 U.S.C. 1536(a)(2)). Section 7 also requires federal agencies to ensure such actions do not jeopardize the continued existence of the listed species:

> Each Federal agency shall, in consultation with and with the assistance of the Secretary, insure that any action authorized, funded, or carried out by such agency (hereinafter in this section referred to as an "agency action") is not likely to jeopardize the continued existence of any endangered species or threatened species or result in the destruction or adverse modification of habitat of such species which is determined by the Secretary, after consultation as appropriate with affected States, to be critical, unless such agency has been granted an exemption for such action by the Committee pursuant to subsection (h) of this section. In fulfilling the requirements of this paragraph each agency shall use the best scientific and commercial data available.

Authority to designate critical habitat is delegated to NOAA Fisheries

The authority to designate critical habitat, including the authority to consider the impacts of designation, the authority to weigh those impacts against the benefit of designation, and the authority to exclude particular areas, has been delegated to the Assistant Administrator of the National Marine Fisheries Service. Department Organization Order 10-15 (5/24/04). NOAA Organization Handbook, Transmittal #34 (May 31, 1993).

Joint regulations govern designation

Joint regulations of the Services elaborate on those physical and biological features essential to conservation, and set criteria for the delineation of critical habitat.

50 CFR Sec. 424.12 Criteria for designating critical habitat.

(b) In determining what areas are critical habitat, the Secretary shall consider those physical and biological features that are essential to the conservation of a given species and that may require special management considerations or protection. Such requirements include, but are not limited to the following:
(1) Space for individual and population growth, and for normal behavior;
(2) Food, water, air, light, minerals, or other nutritional or physiological requirements;
(3) Cover or shelter;
(4) Sites for breeding, reproduction, rearing of offspring, germination, or seed dispersal; and generally;
(5) Habitats that are protected from disturbance or are representative of the historic geographical and ecological distributions of a species.

When considering the designation of critical habitat, the Secretary shall focus on the principal biological or physical constituent elements within the defined area that are essential to the conservation of the species. Known primary constituent elements shall be listed with the critical habitat description. Primary constituent elements may include, but are not limited to, the following: roost sites, nesting grounds, spawning sites, feeding sites, seasonal wetland or dryland, water quality or quantity, host species or plant pollinator, geological formation, vegetation type, tide, and specific soil types.
(c) Each critical habitat will be defined by specific limits using reference points and lines as found on standard topographic maps of the area. Each area will be referenced to the State(s), county(ies), or other local governmental units within which all or part of the critical habitat is located. Unless otherwise indicated within the critical habitat descriptions, the names of the State(s) and county(ies) are provided for information only and do not constitute the boundaries of the area. Ephemeral reference points (e.g., trees, sand bars) shall not be used in defining critical habitat.
(d) When several habitats, each satisfying the requirements for designation as critical habitat, are located in proximity to one another, an inclusive area may be designated as critical habitat.

The regulations define “special management considerations or protection.”

(j) Special management considerations or protection means any methods or procedures useful in protecting physical and biological features of the environment for the conservation of listed species.
Sec. 424.02

APPROACH TO DESIGNATING CRITICAL HABITAT

Statutory Context

One observer has noted that at different times in the history of the ESA, Congress has emphasized both the importance of habitat protection to species conservation and the importance of agency restraint in designating areas as "critical" habitat (Patlis 2001). Congress emphasized the importance of habitat in species conservation in several provisions of the ESA. The findings recognize that extinctions have resulted from economic growth and development. Among the purposes of the Act is providing "a means whereby the ecosystems upon which endangered species and threatened species depend may be conserved." In determining whether a species is a threatened or endangered species, the Secretary is to consider the current or threatened destruction of its habitat. Federal agencies must ensure their actions are not likely to result in the destruction or adverse modification of designated critical habitat. Section 5 of the Act authorizes the Secretary of Interior to acquire land for species conservation and section 10 requires the development of "habitat conservation plans" for the issuance of incidental take permits.

At the same time, the ESA requires a degree of rigor in identifying areas that qualify as critical habitat. The definition of critical habitat specifies separate criteria for designating occupied areas and unoccupied areas. Occupied areas are critical habitat if they contain physical or biological features essential to the species' conservation, and those features may require special management considerations or protection. Unoccupied areas may be designated only upon a determination that the area itself is essential to conservation. (The House Merchant Marine Committee expressed its view "that the Secretary should be exceedingly circumspect in the designation of critical habitat outside of the presently occupied area of the species" (H.R. Rep. 95-1625).) Finally, the Services are not to designate all of the geographical area that can be occupied by the species, absent a determination that the entire area is essential to conservation.

In addition to the tension between an emphasis on the importance of habitat and a rigorous delineation of critical habitat, the ESA's provisions for designating critical habitat stand out from the listing provisions of the Act in requiring the Services to consider factors in addition to species conservation. Before they may designate an area as critical habitat, the Services must consider the economic impact, impact to national security, and any other relevant impact of the designation. The Services have the discretion to exclude an area from designation if they determine the benefits of exclusion (that is, avoiding the impact that would result from designation), outweigh the benefits of designation (that is, the benefits to species conservation). The Services' discretion is limited in that they may not exclude an area from designation if exclusion will result in extinction of the species.

The Services must observe the details of the statutory definition of critical habitat; must use the best available science; must consider the impacts of the designation on economic, national security, and other relevant interests; and may weigh the benefit to species

conservation resulting from designation against the benefits of exclusion. All of this must be done within specific statutory timeframes, based upon the best information available during those timeframes, and with public notice and participation. In designating critical habitat for West Coast salmon and steelhead, we sought an approach that adhered to these statutory requirements and ultimately exercised the agency's discretionary authority within the framework of agency and administration policy.

The approach we adopted in applying sections 3(5)(A) and 4(b)(2) involved these steps:

1. Identify specific areas meeting the definition of critical habitat

2. Conduct a Section 4(b)(2) analysis:
   - Determine the benefit of designation
   - Determine the impact of designation (and corresponding benefit of exclusion)
   - Determine whether benefits of exclusion outweigh benefits of designation
   - Determine whether the cumulative effect of the recommended exclusions will result in extinction of the species

Identify Specific Areas Meeting the Definition of Critical Habitat

In General

Areas that meet the definition of critical habitat include specific areas: 1) within the geographical area occupied by the species at the time of listing, if they contain physical or biological features essential to conservation, and those features may require special management considerations or protection; and 2) outside the geographical area occupied by the species if the agency determines that the area itself is essential for conservation. In a separate report, we have documented our conclusions regarding which specific areas meet the definition of critical habitat and are therefore eligible for designation (NMFS 2005a). Pursuant to section 3(5)(A), our first task was to determine "the geographical area occupied by the species at the time of listing." We developed extensive information regarding the stream reaches occupied by salmon and steelhead using data compiled by the fish and wildlife agencies of Oregon, Washington and Idaho, as the best available data. We collected and verified these data and produced distribution maps at a scale of 1:24,000, using standard Geographic Information System (GIS) software. We also developed latitude-longitude identifiers for the end-points of each occupied stream reach. We submitted these maps to independent experts, including the state agencies and Indian tribes for verification, and to the public, for review and comment.

Relying on the biology and life history of each species, we determined the physical or biological habitat features essential to their conservation. We identified these features in an Advance Notice of Proposed Rulemaking (68 Fed. Reg. 55926, Sept. 29, 2003) and in the proposed critical habitat designation (69 Fed. Reg. 74572, Dec. 14, 2004). We solicited independent expert review, including review by state agencies and Indian tribes, and asked for public comment. Consistent with regulatory direction, we focused on primary constituent elements of habitat in identifying these features.

Similarly, we based our delineation of "specific areas" where these features are found on the biology and population structure of the species, and the characteristics of the habitat it occupies. To delineate specific areas, we used standard watershed units, as mapped by the U.S. Geological Survey, designated by fifth field hydrologic unit codes, or HUC5s (this report refers to these HUC5s as "watersheds"). The USGS maps watersheds as polygons, bounding a drainage area from ridge-top to ridge-top, encompassing streams, riparian areas and uplands. Within the boundaries of any watershed, there are stream reaches not occupied by the species. Land areas within the watershed boundaries are also generally not "occupied" by the species (though certain areas such as flood plains or side channels may be occupied at some times of some years). We used the watershed boundaries as a basis for aggregating occupied stream reaches, for purposes of delineating "specific" areas on which the physical or biological features are found.

Teams of federal biologists then examined each habitat area within a watershed to determine whether the stream reaches occupied by the species contained the physical or biological features previously identified as essential to conservation. The teams also determined whether, consistent with the regulatory definition of "special management considerations or protection" (50 C.F.R. 402.02 (j)), there were "any methods or procedures useful in protecting physical and biological features." The teams drew upon their first-hand knowledge of the areas and the physical or biological features as well as their experience in section 7 consultations. We asked them to determine whether there were actions occurring in those areas that may threaten the features, such that there would be any methods or procedures useful in protecting the features. The teams identified and documented such activities for each area in tables contained in their report, which was submitted to state fishery agencies and tribes for review and made available for public comment (NMFS 2005a). The teams updated the lists of identified activities based on their final review of the best available scientific data as well as information provided by one commenter indicating additional activities in certain watersheds.

Aside from occupied areas containing essential features that may require special management, the definition of critical habitat includes unoccupied areas if the Services determine that the area itself is essential for conservation. We asked the teams of federal biologists whether there were any unoccupied areas within the historical range of the ESUs that may be essential for conservation. The teams indicated there were three unoccupied stream reaches that were essential for the conservation of Hood Canal summer chum, based on a long-standing local recovery plan and the fact that those streams were the focus of reintroduction efforts. In other cases, the teams did not have information available that would allow them to make a determination that unoccupied areas are essential for conservation. The teams nevertheless identified areas they believe may be determined essential through future recovery planning efforts. We anticipate that ongoing recovery planning processes will develop additional information about the species' need for these or other currently unoccupied areas.

Military Lands

Recent amendments to the ESA preclude the Secretary from designating military lands as critical habitat if those lands are covered by an Integrated Natural Resource Management Plan (INRMP) under the Sikes Act and the Secretary certifies in writing that the plan benefits the listed species (Section 4(a)(3), Public Law. No. 108-136). We identified 12 military installations in the Pacific Northwest with INRMPs in place. We reviewed these plans as well as other information available to us regarding the management of these military lands. Based on this information, we determined that each INRMP provides benefits to the listed species, as implemented (NMFS 2005b, which is reproduced as Appendix A to this report).

Conduct a Section 4(b)(2) Analysis

Background

Identifying "Particular" Areas

Section 3(5) defines critical habitat as "specific areas," while section 4(b)(2) requires the agency to consider certain factors before designating any "particular area." Depending on the biology of the species, the characteristics of its habitat, and the nature of the impacts of designation, "specific" areas might be different from, or the same as, "particular" areas. For this designation, we analyzed two types of "particular" areas. Where we considered economic impacts, and weighed the economic benefits of exclusion against the conservation benefits of designation, we used the same watershed-based delineation that we used for "specific" areas (the occupied stream reaches within a watershed). This delineation allowed us to use a cost-effectiveness framework for recommending economic exclusions, described further below. Where we considered impacts on national security, impacts on Indian tribes, and impacts on our program to promote voluntary conservation agreements, however, we instead used a delineation of "particular" areas based on ownership or control of the area. This delineation allowed us to compare and balance the benefits associated with land ownership and management.

Our approach to designation had to account for the fact that the two types of particular areas have overlapping boundaries (that is, ownership may span many watersheds and watersheds may have mixed ownership). The order in which we conducted the 4(b)(2) balancing became important because of this overlap. To ensure that we were not double-counting the benefits of exclusion, we first considered exclusion of particular areas based on land ownership and determined which areas to recommend for exclusion. We then considered economic exclusion of particular areas based on watersheds, with the economic impact for each watershed adjusted based on whether a given type of ownership had already been recommended for exclusion (if, for example, a watershed contained military areas that were recommended for exclusion, we subtracted the economic impact associated with those areas from the total economic impact score for that watershed.)

Analyzing Co-Extensive Impacts

As described earlier, our 2000 designation of critical habitat for 19 ESUs of salmon and steelhead was vacated by court order following a challenge to the designations (*National Association of Homebuilders v. Evans,* No. 00-CV-2799 (D.D.C.)) (*NAHB*). In the 2000 designations we concluded there would be no impact from the designations, because we were only designating occupied areas. Federal agencies must ensure their actions are not likely to result in the destruction or adverse modification of critical habitat and are not likely to jeopardize the species' continue existence. In occupied habitat, we had reasoned that any action that adversely modifies critical habitat would also jeopardize the species, thus there would be no impact of designation beyond the impact already imposed by the listing and the accompanying jeopardy requirement.

While the case against us was pending, the Court of Appeals for the Tenth Circuit vacated the U.S. Fish and Wildlife Service's critical habitat designation for the southwestern willow flycatcher (*New Mexico Cattle Growers Association v. U.S. Fish and Wildlife Service*, 248 F.3d 1277 (10th Cir. 2001)) (*NMCA*). The Service had determined there would be no economic impact from the designation because the impacts associated with jeopardy determinations and adverse modification determinations were coextensive. The Tenth Circuit found the Service's approach rendered meaningless Congress's requirement that economic impacts be considered in the designation process. The Court concluded that, to give "effect to Congressional directive," the Service must analyze the full impacts of designation, regardless of whether those impacts are co-extensive with other impacts (such as the impact of the jeopardy requirement). Given the decision in the Tenth Circuit, and the similarity between the Fish and Wildlife Service's analysis and ours, we sought a voluntary remand of the designations, which the District Court granted.

In granting our motion for a voluntary remand, the district court in *NAHB* noted, "[f]rom this court's perspective the Tenth Circuit's opinion is well-reasoned and comports with the express statutory language of Congress, which specifically requires that an analysis of the economic impact of a critical habitat designation be undertaken." The court observed that "clearly, there is a problem with the current process underlying the critical habitat designation process." The court left it to the agency's "wisdom and institutional knowledge" to remedy the problem and noted "[p]resumably, when the agency conducts new rulemaking it will be in accord with procedures it views to be in accordance with the law."

In developing the proposed critical habitat designation for salmon and steelhead ESUs, we first examined our extensive consultation record with these as well as other ESUs of salmon and steelhead. (For thoroughness, we examined the consultation record for other ESUs to see if it shed light on the issues.) That record includes consultations on habitat-modifying federal actions both where critical habitat has been designated and where it has not. We could not discern a difference between the impacts of applying the jeopardy provision versus the adverse modification provision in occupied habitat. Given our inability to detect a measurable difference between the impacts of applying these two provisions, the only reasonable alternative seemed to be to follow the recommendation of

the Tenth Circuit, approved by the *NAHB* court, which was to measure the entire impact of applying the adverse modification provision of section 7, regardless of whether applying the jeopardy provision would result in the identical impact.

Just prior to publication of our proposed designation, the Court of Appeals for the Ninth Circuit invalidated our regulatory definition of "adverse modification" of critical habitat. Gifford Pinchot Task Force v. FWS , 378 F. 3d 1059 (9th Cir. 2004)(*Gifford Pinchot)*. The Court's decision did not address the regulatory definition of jeopardy. Shortly following that decision, a District Court in Washington, D.C., issued a decision involving the U.S. Fish and Wildlife Service's critical habitat designation for the piping plover. *Cape Hatteras Access Preservation Alliance v. Norton*, 344 F. Supp. 2d 1080 (D.D.C. 2004) (*Cape Hatteras)*. In that decision the Court disagreed with the *NMCA* and *NAHB* Courts, reasoning that the impact of a regulation should be based on a comparison of the world with and without the action and citing guidance from the Office of Management and Budget in support of that proposition. The *Cape Hatteras* Court concluded that the problem with the Services' analysis of economic impacts resulted from its treatment of "adverse modification" and "jeopardy" as being functionally equivalent. The Court ordered the Fish and Wildlife Service "to clarify or modify its position [regarding functional equivalence] on remand," implying that the *Gifford Pinchot* Court's holding might have an effect on the agency's historical treatment of the jeopardy and adverse modification requirements as providing coextensive protections.

In the wake of the *Gifford Pinchot* and *Cape Hatteras* decisions, we are re-examing the regulatory definition of adverse modification but have not yet concluded this process. In the absence of a revised regulation we must look to our current record. Accordingly, we re-examined our record and our current section 7 guidance. We concluded that information currently available to the agency does not allow us to discern an existing difference nor accurately predict the difference between actions required to avoid jeopardy and those required to avoid adverse modification of critical habitat, where habitat-modifying actions are concerned. Nevertheless, we concluded that our analysis of coextensive impacts still allows us to conduct a meaningful section 4(b)(2) analysis so long as we balance those coextensive impacts of designation against coextensive benefits of designation, and, in the case of considering economic exclusions, so long as we continue to use a framework that accommodates a comparison of the relative benefits of designation and exclusion.

The *NMCA* Court's opinion, which we have followed here, addressed only section 4(b)(2)'s requirement that economic impacts be considered ("The statutory language is plain in requiring some kind of consideration of economic impact in the [critical habitat designation] phase"). The Court did not address how "other relevant impacts" were to be considered, nor did it address the benefits of designation. Because section 4(b)(2) requires a balancing of competing considerations, and because our record did not support a distinction between impacts resulting from application of the adverse modification provision versus the jeopardy provision, we have concluded that we must uniformly consider coextensive impacts and coextensive benefits. To do otherwise would distort the balancing test contemplated by section 4(b)(2).

We recognize that, in reality, excluding an area from designation will not likely avoid all of the impacts we considered, because the section 7 requirement regarding jeopardy still applies. Similarly, much of the section 7 benefit would still apply because the jeopardy requirement still applies. Nevertheless, for exclusions based on economic impacts, the analytical framework we are recommending provides a meaningful comparison of the relative benefits and impacts. For exclusions based on impacts to national security, impacts to tribes, and impacts to our program to promote voluntary conservation agreements, our balancing takes into account the difficulty of apportioning impacts between the two different prongs of the section 7 requirement.

Analytical Framework for Determining and Weighing Impacts and Benefits

Section 4(b)(2) provides that the Secretary shall consider certain impacts before designating critical habitat: "the Secretary shall designate critical habitat . . . on the basis of the best scientific data available and after taking into consideration the economic impact, impact to national security, and any other relevant impact of specifying any particular area as critical habitat." In addition, section 4(b)(2) provides that the Secretary may exclude any area from critical habitat upon a determination that "the benefits of such exclusion outweigh the benefits of specifying such area as critical habitat."

The balancing test in section 4(b)(2) contemplates weighing benefits that are not directly comparable – the benefit to species conservation that comes from critical habitat designation balanced against the economic benefit, benefit to national security, or other relevant benefit that results if an area is excluded from designation. In addition, there may be situations where exclusion of particular areas has a conservation benefit to the species (for example, as discussed later, excluding private land from designation when the landowner has contractually agreed to voluntary conservation measures may result in a net conservation benefit to the species). Section 4(b)(2) does not specify a method for the weighing process, nor do our regulations. Legislative history suggests that the consideration and weight given to impacts is within the Secretary's discretion (H.R. 95-1625), and section 4(b)(2) makes clear that the decision to exclude is itself discretionary even when benefits of exclusion outweigh benefits of designation.

To ensure consistency in the exercise of our regulatory authority, we first examined congressional and executive direction to discern principles that would apply across various types of impacts – economic, national security, or other impacts. We then examined congressional and executive direction relative to each type of impact we considered: impacts to national security, impacts to Indian tribes and impacts to our program for the promotion of voluntary conservation agreements.

Policy Direction Relevant to Balancing Conservation against other Interests Generally

Agencies are frequently required to balance benefits of regulations against impacts; Executive Order 12866 established this requirement for federal agency regulation and gives general guidance.

Executive Order 12866

Section 1. Statement of Regulatory Philosophy and Principles.

(a) The Regulatory Philosophy.

In deciding whether and how to regulate, agencies should assess all costs and benefits of available regulatory alternatives, including the alternative of not regulating. Costs and benefits shall be understood to include both quantifiable measures (to the fullest extent that these can be usefully estimated) and qualitative measures of costs and benefits that are difficult to quantify, but nevertheless essential to consider. Further, in choosing among alternative regulatory approaches, agencies should select those approaches that maximize net benefits (including potential economic, environmental, public health and safety, and other advantages; distributive impacts; and equity), unless a statute requires another regulatory approach.

(b) The Principles of Regulation.

. . .

(5) When an agency determines that a regulation is the best available method of achieving the regulatory objective, it shall design its regulations in the most cost-effective manner to achieve the regulatory objective. In doing so, each agency shall consider incentives for innovation, consistency, predictability, the costs of enforcement and compliance (to the government, regulated entities, and the public), flexibility, distributive impacts, and equity.

Endangered Species Act, Section 2 (16 U.S.C. 1531(a)(2))

The purposes of this chapter are to provide a means whereby the ecosystems upon which endangered species and threatened species depend may be conserved . . .

Policy on the Consideration of Hatchery-Origin Fish in Endangered Species Act Listing Determinations for Pacific Salmon and Steelhead (70 FR 37204; June 28, 2005)

NMFS will apply this policy in support of the conservation of naturally-spawning salmon and the ecosystems upon which they depend, consistent with section 2 (b) of the ESA.

Letter from NOAA Administrator to Members of Congress – May 14, 2004

At President Bush's direction, recovery of salmon is the major focus for NOAA in the Pacific Northwest, an objective widely shared in the region and the nation. . . . Much work remains to be done to expand the habitat to support future generations of naturally spawning populations.

. . .

The central tenet of the hatchery policy is the conservation of naturally-spawning salmon and the ecosystems upon which they depend.

Policy Direction Relevant to National Security Impacts

Statement of President George W. Bush
"Securing the Homeland Strengthening the Nation" (2002)

[T]he threat of terrorism is an inescapable reality of life in the 21st century. . . . The country is now at war, and securing the homeland is a national priority."

Policy Direction Relevant to Impacts to Indian Tribes

Secretarial Order # 3206 – American Indian Tribal Rights,
Federal-Tribal Trust Responsibilities,
and the Endangered Species Act, Appendix

Sec. 2. General Policy. (A) Goals. The goals of this Appendix are to provide a basis for administration of the Act in a manner that (1) recognizes common federal-tribal goals of conserving sensitive species (including candidate, proposed, and listed species) and the ecosystems upon which they depend . . .

. . .

4) In keeping with the trust responsibility, shall consult with the affected Indian tribe(s) when considering the designation of critical habitat in an area that may impact tribal trust resources, tribally-owned fee lands, or the exercise of tribal rights. Critical habitat shall not be designated in such areas unless it is determined essential to conserve a listed species. In designating critical habitat, the Services shall evaluate and document the extent to which the conservation needs of the listed species can be achieved by limiting the designation to other lands.

Policy Direction Relevant to Impacts to the Program for Voluntary Conservation Agreements

H.R. Rep. No. 835, 97th Congress, 2nd Session 31 (Reprinted in 1982 U.S. Code Congressional and Administrative New s2807, 2831)

Purpose of adding section 10 of the ESA, which provides for HCPs, is to encourage "creative partnerships" between the private sector and local, state and

federal agencies for the protection of endangered species and habitat conservation.

From these expressions of congressional, executive and agency policy, we developed the following recommendations for the agency exercise of section 4(b)(2) discretion:

- Regarding exclusions based **impacts to national security**, we recommend an approach that emphasizes the priority of national security while considering the degree of conservation benefit that may be lost if military lands are excluded.
- Regarding exclusions based on **impacts to Indian tribes**, we recommend an approach that emphasizes respect for tribal sovereignty and self-governance while considering the degree of conservation benefit that may be lost if Indian lands are excluded.
- Regarding exclusions based on **impacts to the program to promote voluntary conservation agreements**, we recommend an approach that recognizes that a net increase in conservation may be achieved through voluntary landowner agreements, depending on the degree of conservation benefit that may be lost if lands covered by voluntary conservation agreements are excluded.
- Regarding exclusions based on **economic impacts**, we recommend an approach that will efficiently reduce economic impacts and address inequities in the distribution of economic impacts, without impeding species conservation.

Determine benefits of designating each particular area

The principal benefit of designating critical habitat is that ESA section 7 requires every federal agency to ensure that any action it authorizes, funds or carries out is not likely to result in the destruction or adverse modification of designated critical habitat. This complements the Section 7 provision that federal agencies ensure their actions are not likely to jeopardize the continued existence of a listed species. Another possible benefit is that the designation of critical habitat can serve to educate the public regarding the potential conservation value of an area. This may focus and contribute to conservation efforts by clearly delineating areas that are important to species conservation.

After establishing those specific areas that meet the definition of critical habitat, we asked the teams of federal biologists to determine the relative conservation value of each specific area for each species (high, medium or low)(NMFS 2005a). Their evaluation provided information allowing us to determine the benefit of designating each watershed in a way that would aid the 4(b)(2) balancing test. (Throughout this report we refer to HUC5s as watersheds. When referring to watersheds as salmon and steelhead critical habitat, we mean the occupied stream reaches within a watershed.) The higher the conservation value of a watershed, the greater the benefit of the section 7 protection.

The teams first scored each watershed based on five factors related to the quantity and quality of the physical and biological features. For some of these factors the teams relied on their consultation experience in considering the extent to which habitat protection or improvement could be achieved through section 7 consultation. They next considered

each area in relation to other areas and with respect to the population occupying that area. Based on a consideration of the raw scores for each area, and a consideration of that area's contribution in relation to other areas and in relation to the overall population structure of the ESU, the teams rated each watershed as having a "high," "medium" or "low" conservation value. The teams did not discount the conservation value of any area based on a presumption that the section 7 prohibition against jeopardy would protect the habitat regardless of whether it was designated as critical habitat (to ensure that coextensive benefits would be counted equitably against coextensive costs).

Areas rated "high" are likely to contribute the most to conservation of an ESU, while those rated "low" are likely to contribute least. A rating of "high" carries with it a judgment that this area contributes significantly to conservation. A rating of "low" does not mean an area has no conservation value (and therefore there would be no benefit of designation), nor does it mean there would be no impact on conservation of the ESU if the habitat were adversely modified. The benefit of designating a habitat area with a low conservation value will depend on the reasons the area received a "low" rating, on the conservation value of other habitat areas available to the ESU, and on whether nearby habitat areas are designated.

We recognized that the "benefit of designation" needed to take into account not only the teams' conservation ratings but also the likelihood of a section 7 consultation occurring in that area and the degree to which a consultation would yield conservation benefits for the species. To address this concern, we developed a profile for a watershed that would have "low leverage" in the context of section 7. The "low leverage" profile included watersheds with: less than 25 percent of the land area in federal ownership, no hydropower dams, and no consultations likely to occur on instream work. We chose these attributes because federal lands, dams and instream work all have a high likelihood of consultation and a potential to significantly affect the physical and biological features of salmon and steelhead habitat. We treated this "low leverage" profile as diminishing the benefit of designation somewhat but not completely, since the educational benefits of designation would still be more important the higher the conservation value of an area, and since we cannot predict with complete accuracy all of the section 7 consultations that are likely to occur in a particular area. We thus considered the "low leverage" profile to diminish the benefit of designation by one level (that is, a "high" would become a "medium," a "medium" would become a "low" and a "low" would become "very low" (NMFS 2005a). Using the teams of biologists, we confirmed whether watersheds with a low-leverage profile were in fact low leverage based on their experience applying section 7 in the area.

As discussed earlier, the scale we chose for the "specific area" referred to in section 3(5)(A) was occupied stream reaches within a watershed, delineated by the USGS as a HUC5. There were some complications with this delineation that required us to adapt the approach for some areas. In particular, a large stream or river might serve as a connectivity corridor to and from many watersheds, yet be imbedded itself in a watershed. In any given watershed through which it passes, the stream may have a few or several tributaries. This is illustrated by the map in Figure 1. In this example, a

connectivity corridor is imbedded in the watershed designated as "07." The connectivity corridor serves the watersheds designated as "05" and "06." In addition, there is a tributary in "07." For connectivity corridors embedded in a watershed, we asked the teams of biologists to rate the conservation value of the watershed based on the tributary habitat. We assigned the connectivity corridor the rating of the highest-rated watershed for which it served as a connectivity corridor. This could result in a connectivity corridor with a high rating embedded in a habitat area with a low or medium rating.

The reason for this treatment of connectivity corridors is the role they play in the salmon's life cycle. Salmon and steelhead are anadromous – born in fresh water, migrating to salt water to feed and grow, and returning to fresh water to spawn. Without a connectivity corridor to and from the sea, salmon cannot complete their life cycle. It would be illogical to consider a spawning and rearing area as having a particular conservation value and not consider the associated connectivity corridor as having a similar conservation value.

Figure 1. Illustration of a connectivity corridor embedded within a watershed (HUC5).

Our use of two different and overlapping scales for "particular" areas required us to adjust our analysis when we considered areas that were delineated by land ownership or

control rather than by watershed boundary. In weighing the benefit of designation for these areas, we considered the number of stream miles within the area and the conservation rating of those stream miles. We also considered the types of federal activities likely to occur in the future that would undergo section 7 consultation. Our assessment of the benefit of designation thus incorporated information on what section 7 opportunities would be lost over what amount of habitat if we excluded the area.

Determine the benefits of exclusion and balance them against the benefits of designation

The balancing called for in section 4(b)(2) requires us to balance unlike values – conservation balanced against economic interests, conservation balanced against national security, or conservation balanced against trust obligations to Indian tribes. It also contemplates balancing conservation by one method (critical habitat designation and section 7 consultation) against conservation achieved by a different method (such as engaging tribes in range-wide management or engaging landowners in habitat conservation planning on private land). The following sections describe the approach we took to balancing each of these different interests. Table 1 gives an overview of the discussion that follows:

Table 1. Overview of Section 4(b)(2) balancing framework for different types of interests

Particular Area	Benefit of Exclusion	Benefit of Designation	Policy Considerations	Conservation Trade-off
Watershed	Economic	- Based on conservation value of the watershed (as adjusted for "low leverage" areas)	Cost-Effective and Equitable Regulations	Net loss of conservation, but not if the loss will significantly impede conservation of the ESU overall
Military Zone	Maintain military readiness	- Conservation value of the affected watershed(s) is relevant - Types of activities likely to occur there are relevant - Protection provided by INRMPs reduces somewhat the benefit of designation	Priority of National Security	May result in a net loss of conservation, but that is overcome by priority of national security and mitigated by INRMPs
Indian Lands	Respect tribal sovereignty, ensure tribal participation in other conservation forums	- Conservation value of the affected watershed(s) is relevant - Types of activities likely to occur there are relevant	Respect for tribal sovereignty and self-governance Conservation trade-off (lose section 7 on Indian lands in exchange for tribal participation in conservation across all actions and areas)	May result in a net loss of conservation, but that is overcome by priority of tribal sovereignty and mitigated by tribal participation in conservation activities
HCP Lands	Enhance relationship with landowner, provide incentive for other landowners to see HCPs	- Conservation value of the affected watershed(s) is relevant - Types of activities likely to occur there are relevant - Protection provided by HCP reduces benefit of designation for those activities covered by the HCP	Promote voluntary conservation program (lose section 7 on HCP lands in exchange for enhanced implementation and potential for additional HCPs with other landowners)	Net gain in conservation on private lands

Balancing benefits of designation against impacts to national security

Our balancing of the benefits of designation against the benefits of exclusion for military areas is described more fully in a separate document (NMFS 2005b), reproduced at Appendix A. There are 24 military sites that overlap with areas we found to meet the definition of critical habitat for three of the listed ESUs. These areas include shore-based areas (all of which are covered by INRMPs) and offshore areas in Puget Sound where the Navy has security restrictions.

To determine the impact on the military of designating these sites, we contacted the Department of Defense. Both the Army and Navy provided information clarifying site locations and describing the types of military activities that occur at these sites. They also listed the potential changes that critical habitat designation would cause to their activities in these areas, and the consequent national security impacts. Both military agencies concluded that critical habitat designation at any of these sites would likely impact national security by diminishing military readiness. The possible impacts include: preventing, restricting, or delaying training or testing exercises or access to such sites; restricting or delaying activities associated with vehicle/vessel/facility maintenance and ordinance loading; delaying response times for ship deployments and overall operations; and creating uncertainties regarding ESA consultation (e.g., reinitiation requirements) or imposing compliance conditions that would divert military resources. Also, both military agencies cited their ongoing and positive consultation history with NOAA Fisheries and underscored cases where they are implementing best management practices to reduce impacts on listed salmonids.

Following the proposed designation we had further discussion with the Navy and agreed to refine the delineation of offshore areas in Puget Sound where the Navy has established security zones. We had proposed to exclude those areas up to the extreme high water line, but the Navy agreed that the military zone could instead be delineated in terms of the mean lower low tide without raising national security concerns. Since most of the activities affecting salmon and steelhead in the nearshore zone are land-based, this refinement allowed us to retain most of the conservation benefit of designating nearshore areas while still retaining the benefit to national security of excluding offshore military areas.

The principal benefit of designating critical habitat is section 7's requirement that federal agencies ensure their actions are not likely to result in adverse modification of that habitat. To understand the benefit of designating critical habitat in military areas, we considered the number of miles of stream and nearshore areas affected, the conservation value rating of those areas, and the types of activities occurring there that would be likely to undergo a section 7 consultation. For areas covered by INRMPs, we also considered the fact that the INRMPs provide some level of conservation benefit to the listed salmon and steelhead. The 12 land-based facilities and 12 Navy security zones in Puget Sound include both stream and nearshore critical habitat for three ESUs: one percent of the total stream miles and two percent of the total nearshore miles for Puget Sound Chinook; four percent of the total nearshore miles for Hood Canal summer-run chum; and one percent

of the total stream miles for upper Columbia River steelhead. All of the stream and nearshore miles are rated as having a high conservation value.

The types of activities occurring in these areas that would be likely to undergo a section 7 consultation include activities associated with: instream activities, National Pollutant Discharge Elimination System permits, and non-hydropower dams (NMFS 2005b).

The benefit of excluding these areas is that the Navy would not need to reinitiate consultation on ongoing activities for which consultation has been completed. Reinitiation of consultation would likely require some commitment of resources on the part of the Navy. Moreover, in a reinitiated consultation, or in any future consultation, the Navy may be required to modify some of its activities to ensure they would not be likely to adversely modify the critical habitat. The Navy maintains that the additional commitment of resources, and any modification of its activities, would likely reduce its readiness capability. Given that the Navy is currently actively engaged in training, maintaining, and deploying forces in the current war on terrorism, this reduction in readiness could reduce the ability of the military to ensure national security.

For each ESU, we considered the miles of habitat within the boundaries of military areas; the conservation value of that habitat; and type of federal activities in those areas that would likely undergo section 7 consultation. We also considered the degree to which the military agencies believe designation will affect military readiness (NMFS 2005b). Based on our consideration, and given the following factors, we concluded that the national security benefits of exclusion outweigh the conservation benefits of designation for each of the three affected ESUs:

- the high priority placed on national security by the Administration;
- the potential for critical habitat designation to have some impact on the Navy's military readiness;
- the fact that these areas are covered by INRMPs that we find provide a benefit for the ESU, as implemented (thereby reducing the benefit of designation); and
- the fact that collectively these areas represent relatively small percentages of the total habitat available for each ESU.

Our consideration of whether these exclusions would result in extinction of any of the affected ESUs is described in more detail in the discussion of ESU-by-ESU exclusions later in this report.

Balancing benefits of designation against impacts to Indian tribes

Our balancing of the benefits of designation against the benefits of exclusion for Indian lands is described more fully in a separate document (NMFS 2005c), reproduced at Appendix B. There are 14 tribes with Indian lands that overlap the critical habitat for seven of the 12 ESUs considered in this designation. The critical habitat on Indian lands ranges from a few miles to hundreds of miles of stream, and includes areas rated as having a high, medium and low conservation rating.

Throughout the course of preparing the proposed designation we consulted with Northwest Indian tribes to determine the impact of critical habitat designation on tribes. Northwest tribes universally advised us that critical habitat designation would have a negative impact on tribal sovereignty and tribal self-governance. The longstanding and distinctive relationship between the federal and tribal Governments is defined by treaties, statutes, executive orders, judicial decisions, and agreements, which differentiate tribal governments from the other entities that deal with, or are affected by, the federal government. This relationship has given rise to a special federal trust responsibility involving the legal responsibilities and obligations of the United States toward Indian Tribes and the application of fiduciary standards of due care with respect to Indian lands, tribal trust resources, and the exercise of tribal rights. Pursuant to these authorities lands have been retained by Indian Tribes or have been set aside for tribal use. These lands are managed by Indian Tribes in accordance with tribal goals and objectives within the framework of applicable treaties and laws.

Tribal governments have a unique status with respect to salmon and steelhead in the Pacific Northwest, where they are co-managers of these resources throughout the region. The co-manager relationship crosses tribal, federal, and state boundaries, and addresses all aspects of the species' life cycle. The positive working relationship between the federal government and tribes can be seen in federal-tribal participation within the *U.S. v. Oregon* and *U.S. v. Washington* framework and the participation of tribes on interstate (Pacific Fisheries Management Council) and international (Pacific Salmon Commission) management bodies. Additionally, there are innumerable local and regional forums and planning efforts in which the tribes are engaged with the federal government (NMFS 2005c provides a detailed list of activities and forums). These activities result in several benefits to the salmon species, by ensuring that habitat priorities are identified and addressed, that hatchery reforms are implemented, and that harvest does not preclude recovery. The participation of the tribes in these activities is crucial to the management and recovery of the listed species.

Our consultation with the tribes and a series of letters and analyses they have provided indicates that they view the designation of Indian lands as an unwanted intrusion into tribal self-governance, compromising the government-to-government relationship that is essential to achieving our mutual goal of conserving threatened and endangered salmon and steelhead. Further, the tribes indicate that their participation in existing co-manager processes will be compromised by the designation of their lands as they have limited staff and resources.

Based on this background, we concluded that the designation of Indian lands would have a negative impact on the longstanding unique relationship between the tribes and the federal government and have a corresponding negative impact on salmon protection and management. We considered these impacts to be relevant to the section 4(b)(2) consideration, consistent with recent case law addressing the designation of critical habitat on tribal lands. "It is certainly reasonable to consider a positive working relationship relevant, particularly when the relationship results in the implementation of beneficial natural resource programs, including species preservation." *Center for*

Biologicial Diversity et. al. v. Norton, 240 F. Supp. 2d 1090, 1105); *Douglas County v. Babbitt* 48 F3d 1495, 1507 (1995)(defining "relevant" as impacts consistent with the purposes of the Act).

The principal benefit of designating critical habitat is section 7's requirement that federal agencies ensure their actions are not likely to result in adverse modification of that habitat. To understand the benefit of designating critical habitat on Indian lands, we considered the number of miles of stream and nearshore areas affected, the conservation value rating of those areas, and the types of activities occurring there that would be likely to undergo a section 7 consultation. Table 2 lists the ESUs and amount of habitat involved.

Table 2. Benefits of critical habitat designation on Indian lands – extent of habitat that would receive section 7 protections.

ESU and Occupied Miles (Occupied stream miles / occupied nearshore miles)	Stream miles overlapping with Indian lands			Indian lands overlap as % of total stream miles occupied	Nearshore miles (all high) overlapping with Indian lands	Indian lands overlap as % of total nearshore miles occupied
	Conservation Value					
	High	Med	Low			
1. Puget Sound Chinook Salmon (2,216 / 2,376)	46		<1	2%	146	6%
2. Hood Canal Summer-run Chum Salmon (88 / 402)		4		5%	9	2%
3. Ozette Lake Sockeye Salmon (40 / na)	<1			2%		
4. Upper Columbia River Steelhead (1,332 / na)	43	2	9	4%		
5. Snake River Steelhead (8,225 / na)	27	12		<1%		
6. Middle Columbia River Steelhead (6,529 / na)	535	63	1	9%		
7. Upper Willamette River Steelhead (1,830 / 0)	9		2	<1%		

The types of activities occurring in these areas that would be likely to undergo a section 7 consultation include activities associated with: mining, utilities, dredging, instream activities, development, National Pollutant Discharge Elimination System permits, transportation, non-hydropower dams, and hydropower dams (NMFS 2005c).

The benefit of excluding these areas is that federal agencies acting on behalf of, funding, or issuing permits to the tribes would not need to reinitiate consultation on ongoing activities for which consultation has been completed. Reinitiation of consultation would likely require some commitment of resources on the part of the affected tribe. Moreover, in a reinitiated consultation, or in any future consultation, tribes may be required to modify some of their activities to ensure the activities would not be likely to adversely modify the critical habitat. The benefits of excluding Indian lands from designation include: 1) the furtherance of established national policies, our federal trust obligations and our deference to the tribes in management of natural resources on their lands; 2) the maintenance of effective long term working relationships to promote the conservation of salmon and steelhead on an ecosystem-wide basis across four states; 3) the allowance for continued meaningful collaboration and cooperation in scientific work to learn more about the conservation needs of the species on an ecosystem-wide basis; and 4) continued respect for tribal sovereignty over management of natural resources on Indian lands through established tribal natural resource programs.

For each ESU, we considered: the miles of habitat within the boundaries of Indian lands; the conservation value of that habitat; and the federal activities in those areas that would likely undergo section 7 consultation. We also considered the degree to which the tribes believe designation will affect their participation in regional management forums and their ability to manage their lands (NMFS 2005c).

Based on our consideration, and given the following factors, we concluded that the benefits to conservation of the ESUs from full tribal participation in regional salmon management mitigated the loss of conservation benefits that would result from designation of tribal lands. With this mitigating conservation benefit in mind, we further concluded that the benefits to tribal governments, with whom the federal government has a unique trust relationship, particularly with regard to land held by the federal government in trust for the tribes, therefore outweigh the conservation benefits of designation for each of the seven affected ESUs. We considered the following factors in reaching this conclusion:

- the unique relationship between the federal government and Indian tribes in general and more specifically defined in the Pacific Northwest under *U.S. v. Washington* and *U.S. v. Oregon*;
- the unique status of lands held in trust by the federal government for the benefit of Indian tribes;
- the unique consideration to be given Indian lands under Secretarial Order 3206 ;
- the potential for critical habitat designation to have some impact on tribal participation in regional management forums;
- the potential for critical habitat designation to have some impact on tribal sovereignty and self-governance;
- our analysis of the type of activities likely to require a section 7 consultation; and
- the fact that collectively these areas represent relatively small percentages of the total habitat available for each ESU.

The Indian lands specifically recommended for exclusion are those defined in the

Secretarial Order, including: 1) lands held in trust by the United States for the benefit of any Indian tribe, 2) land held in trust by the United States for any Indian Tribe or individual subject to restrictions by the United States against alienation, 3) fee lands, either within or outside the reservation boundaries, owned by the tribal government; and, 4) fee lands within the reservation boundaries owned by individual Indians.

Our consideration of whether these exclusions would result in extinction of any of the affected ESUs is described in more detail in the discussion of ESU-by-ESU exclusions later in this report.

Balancing benefits of designation against impacts to the program to promote voluntary conservation agreements

Our balancing of benefits of designation and exclusion for lands covered by Habitat Conservation Plans (HCP) is described more fully in a separate document (NMFS 2005e), reproduced at Appendix C. There are 10 landowners with current HCPs whose lands overlap the critical habitat of the ESUs considered in this rule. They range from lands with just a few stream miles to lands with scores of stream miles of critical habitat.

Section 10 of the ESA provides an opportunity for landowners to obtain an incidental take permit by developing and implementing a Habitat Conservation Plan (HCP). The HCP must specify the impact likely to result from take, what steps the applicant will take to minimize and mitigate such impacts, and the funding available to implement such steps. The applicant must have considered alternative actions and explained why other alternatives are not being pursued, and we may require additional actions necessary or appropriate for the purposes of the plan. Before an HCP can be finalized, we must conclude that any take associated with implementing the plan will be incidental, that the impact of such take will be minimized and mitigated, that the plan is adequately funded, and that the take will not appreciably reduce the likelihood of the survival and recovery of the species in the wild. The HCP undergoes environmental analysis under the National Environmental Policy Act and we conduct a section 7 consultation with ourselves to ensure granting the permit is not likely to jeopardize the continued existence of the species or destroy or adversely modify designated critical habitat.

Designation of critical habitat on HCP-covered lands may affect activities that are initiated by the landowner (such as when the landowner needs a federal permit to conduct instream work) or that are initiated by a federal agency and have no direct involvement by the landowner (such as federal funding of construction on a county road). For activities initiated by the landowner, although the section 7 applies only to federal actions, the requirement to avoid adverse modification of critical habitat operates as a requirement imposed on the landowner. For example, when a landowner needs a permit from the U.S. Army Corps of Engineers to armor a streambank, it is the landowner, not the Corps, who will bear any cost of design changes that are required to avoid adversely modifying the critical habitat.

The designation of critical habitat may also have impacts that are unrelated to section 7's requirements. For example, state environmental laws may contain provisions that are

triggered if a state-regulated activity occurs in federally-designated critical habitat. Another possibility is that critical habitat designation could have "stigma" effects, or impacts on the economic value of private land that are not attributable to any direct restrictions on the use of the land (NMFS 2005e).

Because of these potential impacts, landowners often are opposed to designation of their land as critical habitat. This opposition is well-documented in the popular press. During the comment period on the proposed rule, we received comments from a number of parties interested in HCPs and other forms of conservation agreements. Many of the commenters expressed the view that designation of lands covered by HCPs may harm our ongoing relationship with landowners. The comments of three landowners with current HCPs provided evidence that exclusion is likely to enhance our relationship with these landowners, which in turn will promote our ability to work effectively together to implement the HCP. Another landowner with a current HCP welcomed designation because it reinforces the importance of the area. Other landowners with current HCPs were silent regarding the impact of designation on their land. Based on this mix of comments, we could not draw a conclusion that landowners with HCPs universally view designation of critical habitat as interfering with our relationship. We could draw that conclusion only with respect to the landowners who raised concerns.

The three landowners are Washington Department of Natural Resources, Green Diamond Resources Company, and West Fork Timber Company. The affected ESUs and number of stream miles are shown in Table 3.

Table 3. Benefits of critical habitat designation on HCP-covered lands – extent of habitat that would receive section 7 protections.

ESU and Occupied Miles (Occupied stream miles)	Stream miles overlapping with HCP lands			HCP lands overlap as % of total stream miles occupied
	Conservation Value			
	High	Med	Low	
1. Puget Sound Chinook Salmon (2,216)	70	23	5	4%
2. Lower Columbia River Chinook Salmon (1,655)	87	75		10%
3. Hood Canal Summer-run Chum Salmon (88)	4	1		6%
4. Columbia River Chum Salmon (715)	4			<1%
5. Ozette Lake Sockeye Salmon (40)	2			5%
6. Lower Columbia River Steelhead (2,673)	84	41		5%

The types of activities occurring in these areas that would be likely to undergo a section 7 consultation include activities associated with: dredging, instream activities, development, National Pollutant Discharge Elimination System permits, transportation, non-hydropower dams, and hydropower dams (NMFS 2005e).

The benefits of designating HCP-covered lands may be reduced by the fact that the landowner has put conservation measures in place through the HCP. These measures provide protection when actions are taken by the landowner and are covered by the HCP.

The benefits of excluding these HCP-covered lands from designation include the furtherance of our ongoing relationship with these landowners in particular, the potential that exclusion of these lands will provide an incentive for other landowners to seek HCPs, and the general promotion of a the HCP program. Conservation agreements on non-federal land provide an important conservation benefit to listed species. Section 7 applies only to federal agency actions. Its requirements protect listed salmon and steelhead on federal lands and whenever a federal permit or funding is involved. Nevertheless, its reach is limited. The vast majority of activities occurring in riparian and upland areas on non-federal lands do not require a federal permit or funding and are not reached by section 7. The ability of the ESA to induce private landowners to adopt conservation measures lies instead in the take prohibitions of section 9(a) and 4(d) and many landowners have chosen to adopt conservation plans to avoid any uncertainty. For these reasons, the agency has a long-standing policy of promoting voluntary conservation agreements with non-federal landowners, particularly through the HCP program (61 FR 63854; December 2, 1996).

For each ESU, we considered: the miles of habitat within the boundaries of the three HCPs; the conservation value of that habitat; and the types of federal activities in those areas that would likely undergo section 7 consultation. We also considered the degree to which the landowners believe designation will affect the ongoing partnership that is essential to the continued successful implementation of the HCP and the extent to which exclusion provides an incentive to other landowners (NMFS 2005e).

Based on our consideration, and given the following factors, we conclude that the benefits to conservation of the ESUs from enhancing our ongoing relationship with these landowners, from encouraging other landowners to develop HCPs, and from promoting the HCP program generally, outweigh the benefits of designation for each of the six affected ESUs. We considered the following factors in reaching this conclusion:

- the primary means of obtaining conservation on private lands is through HCPs and other conservation agreements rather than through section 7;
- the conclusion we reached in approving these HCPs that they were adequate to provide for conservation of the ESUs, with respect to the activities covered by the HCPs;
- our established policy of promoting conservation on private land through developing HCPs;

- the stated belief that designation of these HCP lands would interfere with our ongoing relationship with these landowners;
- the expectation that exclusion from critical habitat designation will encourage other landowners to seek HCPs;
- the fact that these HCPs expressly provide for conservation of the affected ESUs.

Our consideration of whether these exclusions would result in extinction of any of the affected ESUs is described in more detail in the discussion of ESU-by-ESU exclusions later in this report.

Economics – Balancing benefits of designating particular watersheds against economic benefits

We balanced the benefits of designation against the economic benefits of exclusion using a cost-effectiveness approach described below. The report at Appendix D show how we applied of this approach to develop recommendations for exercise of the Secretary's discretion to exclude particular areas.

In a separate report we document our estimate of the economic impacts of designating each of the particular areas found to meet the definition of critical habitat (NMFS 2005d). The first step was to identify the baseline conditions – the legal and regulatory constraints on economic activity that are independent of critical habitat designation, for example Clean Water Act requirements. Coextensive impacts of the section 7 jeopardy requirement were not considered part of the baseline. Next, from the consultation record, we identified federal activities that might affect habitat and that might result in a section 7 consultation. (We did not consider federal actions, such as the approval of a fishery, that might affect the species directly but not affect its habitat.) We identified 13 types of activities and the modifications each type of activity was likely to undergo as a result of section 7 consultation. We developed an expected direct cost for each type of action and projected the likely occurrence of each type of project in each watershed, using existing spatial databases (for example., the U.S. Army Corps of Engineers 404(d) permit database). Finally, we aggregated the costs from the various types of actions and estimated an annual impact, taking into account the probability of consultation occurring and the likely rate of occurrence of that project type.

The economic analysis makes certain simplifying assumptions that may cause costs in some categories to be overstated. For example, except for costs associated with federal lands and a judicial restriction on pesticide application, costs are assigned to all activities within the geographic boundary of the watershed, even though not all federal activities in the watershed will lead to a section 7 consultation. The analysis also makes assumptions about the likely impact of modifications to hydropower projects, when in fact many of the projects included in the analysis may not require modifications. This could not be determined without further analysis, which time did not permit. As discussed previously, the analysis also overestimates costs because it includes costs that would be incurred as a result of applying the jeopardy requirement of section 7. Nevertheless, the analysis is based on the best information available within the time constraints, and it provides a

reasonable basis for comparing cost impacts among different areas to inform the designation process.

The analysis also estimated how much of the economic impacts would have a local effect versus a regional or national effect. This was accomplished by identifying which of the activity types were likely to have local economic effects (such as instream activities) and which were likely to have broader effects (such as hydropower or federal lands activities). By estimating the number of people within each watershed, the analysis also allowed for a consideration of per capita costs in each. Because there were habitat areas where we wanted the option to consider connectivity corridors separately from the tributaries (such as a high-value connectivity corridor through an otherwise low-value habitat area), we also identified which types of activities were most likely to have tributary impacts and which were most likely to have connectivity corridor impacts. This allowed us to estimate the separate impact of designating just the tributaries (and therefore the separate benefit of excluding just the tributaries).

The economic analysis presents the costs as a point estimate for each habitat area, generally representing the mid-point of the range of costs. The economic analysis used two different discount rates to predict future costs (7 and 3 percent). In conducting our 4(b)(2) cost-effectiveness analysis we focused on the estimates that used the 7 percent rate. We also tested our methods against the estimates using the 3 percent rate and found the results would not change.

Ideally the balancing of any benefits, particularly economic benefits, would involve first translating the benefits on both sides of the balance into a common metric. Executive branch guidance from the Office of Management and Budget suggests that benefits should first be monetized – converted into dollars. Benefits that cannot be monetized should be quantified (for example, numbers of fish saved.) Where benefits can neither be monetized nor quantified, agencies are to describe the expected benefits (OMB 2003).

It may be possible to monetize benefits of critical habitat designation for a threatened or endangered species in terms of willingness-to-pay (OMB 2003). However, we are not aware of any available data at the scale of our designation (by watershed, across more than 600 watersheds) that would support such an analysis for salmon and steelhead. The short statutory timeframes, geographic scale of the designations under consideration, and the statute's requirement to use best "available" information suggest such a costly and time-consuming approach is not currently available. In addition, section 4(b)(2) requires analysis of impacts other than economic impacts that are equally difficult to monetize, such as benefits to national security of excluding areas from critical habitat. In the case of salmon and steelhead designations, impacts to Northwest tribes or to our program to promote voluntary conservation agreements are "other relevant" impacts that also may be difficult to monetize.

An alternative approach, approved by OMB, is to conduct a cost-effectiveness analysis. A cost-effectiveness analysis ideally first involves quantifying benefits, for example, percent reduction in extinction risk, percent increase in productivity, or increase in

numbers of fish. Given the state of the science, it would be difficult to quantify the benefits reliably. There are models for estimating numbers of salmon that might be produced from a watershed under different sets of environmental conditions (for example, Ecosystem Diagnosis and Treatment (Mobrand 1999)). While such models give quantified results, the accuracy of the quantified projections is uncertain because of the lack of data both on the relationships between environmental conditions and numbers of fish, and the actual conditions of habitat in a given area. This leads to a heavy reliance on expert opinion for estimating habitat condition and the expected response of fish to changing environmental conditions in a specific location. Moreover, applying such models at the scale required for salmon and steelhead would take more time than the statute allows.

Although it is difficult to monetize or quantify benefits of critical habitat designation, it is possible to differentiate among habitat areas based on their relative contribution to conservation. For example, habitat areas can be rated as having a high, medium or low conservation value. Like the models discussed above, such a rating is based on best professional judgment. The simpler output (a qualitative ordinal ranking), however, may better reflect the state of the science for the geographic scale considered here than a quantified output, and can be done more easily within the statutory timeframes and with available information. The qualitative ordinal evaluations can then be combined with estimates of the economic costs of critical habitat designation in a framework that essentially adopts that of cost-effectiveness. Individual habitat areas can then be assessed using both their biological evaluation and economic cost, so that areas with high conservation value and lower economic cost have a higher priority for designation and areas with a low conservation value and higher economic cost have a higher priority for exclusion.

In determining whether the economic benefit of excluding a habitat area might outweigh the benefit to the species of designation, we considered the following factors: 1) the policy goal of exercising our discretion to further conservation of listed species; 2) the policy goal of adopting regulations that minimize total economic impacts and disparate economic impacts; 3) the recognition that because we are considering coextensive impacts, the dollar benefits of exclusion are likely overstated, 4) the difficulty of balancing dissimilar values (dollars versus benefits to species conservation); and 5) the limited time frame in which to make decisions. Consideration of these factors led us to a cost-effectiveness approach in which we gave priority to excluding habitat areas with a relatively lower benefit of designation and a relatively higher economic impact.

The circumstances of most of the listed ESUs seem well suited to a cost-effectiveness approach. Pacific salmon and steelhead are wide-ranging species and occupy numerous habitat areas with thousands of stream miles. Most of these areas contain "physical or biological features" we have identified as "essential to conservation" of the ESUs. Not all these areas, however, are of equal importance to conserving an ESU, as evidenced by the biological teams' rating of different areas as high, medium or low. It is therefore possible to construct different scenarios for achieving conservation, which might have more or less certainty of achieving conservation, and more or less economic impact.

To give effect to our policy goals we decided on a two-step approach. In the first step we identified all areas eligible for exclusion. Eligibility was determined based on a dollar impact. In the second step we asked the biological teams to consider whether excluding any of the eligible areas, either alone or in combination with other eligible areas, would significantly impede conservation. For the first step, we sought criteria that would result in a list of eligible areas with a meaningful cost savings. At the same time, because of the time limitations, we did not want to develop a list that would then require extensive modification as a result of applying biological judgment in the second step.

We also sought criteria that would account for the fact that recovery planning processes are not yet complete. The timeframes associated with the designation process necessarily lead to decisions regarding designation of critical habitat in advance of recovery planning. This is a factor for the agency to consider in deciding whether to exclude any areas.

To better determine the most appropriate criteria, we first constructed alternative scenarios for the initial exclusion step. In one scenario we did not exclude any areas. This scenario would provide the maximum benefit of designation to the species, and a useful point of comparison for the economic benefit possible from other scenarios. In another scenario we simply considered as eligible for exclusion all habitat areas with a low- or medium-value rating. In a third scenario we developed dollar thresholds for low- and medium-value areas likely to result in meaningful economic reductions, but that would not in most cases automatically make all the low- and medium-value habitat areas eligible for exclusion.

In addition to overall economic impact, we were concerned about equitable allocation of impacts. Per capita local impacts tended to be higher in less developed areas where there are fewer people. To carry out the policy objective of an equitable distribution of the regulatory burden, we also included criteria in the third scenario making areas eligible for exclusion based on per capita impact. In none of the scenarios did we consider habitat areas for exclusion if they had a high-value. Based on the rating process used by the biological teams, we judged that exclusion of any of the high-value areas would significantly impede conservation.

Selection of criteria for the third scenario was complicated by the fact that the circumstances of each ESU are unique. For example, none of the habitat areas occupied by Columbia River chum or Hood Canal summer chum received a low-value rating. Some ESUs had a higher proportion of low- and medium-value areas than others. Different criteria could therefore be expected to produce different results for different ESUs. In developing criteria for the third scenario, we chose dollar thresholds that we anticipated would lead most directly to a cost-effective scenario, recognizing that the question of whether the economic benefit of excluding any particular area outweighs the benefit of designating that area can only be answered in the context of the overall designation – the conservation impact of excluding any particular area may depend on

which other areas are being excluded, and therefore the benefit of designation may depend on what else is being designated.

As criteria for identifying habitat areas eligible for exclusion, we selected a threshold for total impacts of $85,000 and per capita impacts greater than $100 for low-value areas. For medium-value areas, we selected a threshold of $300,000 and per capita impacts greater than $500. The average size of watersheds in Idaho is only 40 percent of the average size of watersheds in Oregon and Washington, so for the Idaho watersheds we used thresholds set at 40 percent of these values. These numbers do not represent an objective judgment that, for example, a low-value area is worth no more than $85,000. The statute directs us to balance dissimilar interests with a limited amount of time (and therefore information). It emphasizes the discretionary nature of the decision to exclude. Moreover, while our approach follows the Tenth Circuit's direction to consider coextensive economic impacts, we nevertheless must acknowledge that all of the cost estimates are likely higher than the true cost of a critical habitat designation. Finally, the cost estimates developed by our economic analysis do not result in a distribution with obvious break points that would lead to a logical division between "high," "medium," and "low" costs that might correspond to high, medium and low conservation value. Given these factors, a judgment that any particular dollar threshold is objectively "right," would be neither necessary nor possible. Rather, what economic impact is "high" and therefore might outweigh the benefit of designating a medium- or low-value habitat area is a matter of discretion and depends on the policy context. The policy context in which we carry out this task led us to select dollar thresholds that would likely lead to a cost-effective designation in a limited amount of time with a relatively simple process. We did not receive any comments from peer reviewers or the public regarding our choice of dollar thresholds or the two-step process we used to first identify areas eligible for exclusion and then determine whether to recommend exclusion.

As described previously, during the course of developing a final rule we also considered whether there were some cases in which the biological teams' ratings of conservation value might need to be adjusted to take into account the likelihood of a consultation and the degree of habitat modification likely as a result of potential federal actions. To address this concern, we identified a profile for a watershed that would have "low leverage" based on the fact that a section 7 consultation in that watershed would be unlikely to occur or, if it did occur, it would yield few conservation benefits. We used this profile to identify potential low leverage watersheds and then verified with the biological teams that the areas identified did indeed have low section 7 leverage. We then adjusted downward by one level the conservation rating for these low leverage watersheds. The result was that some watersheds previously given a low conservation value now had a "very low" conservation value. To balance the benefit of designating these watersheds against the economic benefit of excluding them, we adopted an additional dollar threshold of $1000, as a figure that represented a very low economic impact. (We did not develop a profile for a high leverage watershed and adjust conservation ratings upward because of the second step in our economic exclusion process, in which the biological teams advised whether exclusion would significantly impede conservation. Our selection of dollar thresholds was intended to create an

efficient process and not because of a judgment about absolute equivalence between a certain dollar amount and a certain amount of conservation. We concluded that this second step protected against excluding a watershed if exclusion would significantly impede conservation, making upward adjustments unnecessary.)

Table 4 illustrates the results of each scenario for each ESU (L=Low and M=Medium). Where a habitat area contains tributaries with one rating and a connectivity corridor with another rating, the impacts are separated and attributed accordingly. For example, if a habitat area has a low-value tributary rating and a high-value connectivity corridor, the economic impact of designating the high-value connectivity corridor is represented in the "high" category and the impact of designating the tributaries is represented in the "low" category.

Table 4: Comparison of alternative scenarios for excluding certain areas from critical habitat designation under ESA section 4(b)(2). The cumulative potential economic impact of designating habitat areas within watersheds is presented for the low conservation value, medium conservation value, high conservation value, and all habitat areas for each Evolutionarily Significant Unit (ESU). The reduction in potential economic impact is then presented for each of the three scenarios. Economic impacts reflect those for watersheds and connectivity corridors within the spawning and rearing range of a given ESU.

		Potential Reduction in Maximum Economic Impact *(reduction in annual economic impact of section 7 consultations)*		
Conservation value of watersheds/ nearshore areas	**Maximum economic impact**	**Scenario 1**	**Scenario 2**	**Scenario 3**
L = low value *M = medium value* *H = high value*	*Annual economic impact of section 7 consultations*	*No areas eligible for exclusion*	*All low-value(L) and medium-value (M) areas eligible for exclusion. For L and M areas with high-value (H) migration/ connectivity corridors, only tributaries are eligible for exclusion.*	*All low-value (L) areas with an economic impact > $85,000/yea or >$100/year/personr, and all medium-value (M) areas with an economic impact of $300,000/year or > $500/year/person, are eligible for exclusion*
1. Puget Sound chinook ESU				
L	$8,472,412	$0	-$8,472,412	-$8,472,412
M	$12,026,703	$0	-$12,026,703	-$11,085,430
H	$70,357,267	$0	$0	$0

Total	**$90,856,383**	**$0**	**-$20,499,116**	**-$19,557,842**
2. Lower Columbia River chinook ESU				
L	$4,851,132	$0	-$4,851,132	-$4,851,132
M	$6,509,118	$0	-$6,509,118	-$4,547,868
H	$26,194,803	$0	$0	$0
Total	**$37,555,053**	**$0**	**-$11,360,250**	**-$9,399,000**
3. Upper Willamette River chinook ESU				
L	$4,639,638	$0	-$4,639,638	-$4,639,638
M	$4,746,829	$0	-$4,746,829	-$1,931,760
H	$22,805,563	$0	$0	$0
Total	**$32,192,031**	**$0**	**-$9,386,468**	**-$6,571,398**
4. Upper Columbia River spring-run chinook ESU				
L	$0	$0	$0	$0
M	$4,183,890	$0	-$4,183,890	-$3,387,900
H	$13,447,675	$0	$0	$0
Total	**$17,631,565**	**$0**	**-$4,183,890**	**-$3,387,900**
5. Hood Canal summer-run chum ESU				
L	$0	$0	$0	$0
M	$1,633,492	$0	-$1,633,492	$0
H	$5,121,923	$0	$0	$0
Total	**$6,755,416**	**$0**	**-$1,633,492**	**$0**
6. Columbia River chum ESU				
L	$0	$0	$0	$0
M	$578,785	$0	-$578,785	-$528,994
H	$16,435,738	$0	$0	$0
Total	**$17,014,523**	**$0**	**-$578,785**	**-$528,994**
7. Ozette Lake sockeye ESU				
L	$0	$0	$0	$0
M	$0	$0	$0	$0
H	$2,723	$0	$0	$0
Total	**$2,723**	**$0**	**$0**	**$0**
8. Upper Columbia River Steelhead				
L	$226,967	$0	-$226,967	-$210,642
M	$8,850,190	$0	-$8,850,190	-$5,821,506
H	$17,631,560	$0	$0	$0
Total	**$26,708,717**	**$0**	**-$9,077,157**	**-$6,032,148**
9. Snake River Basin Steelhead				

L	$561,888	$0	-$561,888	-$480,090
M	$2,702,081	$0	-$2,702,081	-$275,532
H	$26,666,414	$0	$0	$0
Total	**$29,930,383**	**$0**	**-$3,263,969**	**-$755,622**
10. Middle Columbia River Steelhead				
L	$2,023,184	$0	-$2,023,184	-$1,966,579
M	$7,542,012	$0	-$7,542,012	-$2,311,459
H	$33,141,019	$0	$0	$0
Total	**$42,706,215**	**$0**	**-$9,565,196**	**-$4,278,038**
11. Lower Columbia River Steelhead				
L	$1,069,821	$0	-$1,069,821	-$1,069,821
M	$8,002,572	$0	-$8,002,572	-$6,215,291
H	$27,499,337	$0	$0	$0
Total	**$36,571,730**	**$0**	**-$9,072,393**	**-$7,285,112**
12. Upper Willamette Steelhead				
L	$4,056,065	$0	-$4,056,065	-$4,056,065
M	$2,222,039	$0	-$2,222,039	-$432,615
H	$8,861,875	$0	$0	$0
Total	**$15,139,978**	**$0**	**-$6,278,103**	**-$4,488,679**

Scenario 1 illustrates the total estimated economic impact of applying section 7 requirements to habitat-modifying actions in all of the habitat areas within an ESU. Scenario 2 illustrates the estimated potential reduction in economic impact if all of the low- and medium-value habitat areas are excluded, and Scenario 3 illustrates the estimated potential reduction in economic impact if low- and medium-value habitat areas above a particular dollar threshold are excluded. The cost reductions shown are only potential reductions. Until the second step of the analysis is completed, it is not possible to determine the final estimated reduction that scenario would yield. In considering the scenarios, we kept in mind that both the costs and reductions to cost are likely overstated because the jeopardy requirement of section 7 still applies. Nevertheless, examining alternatives gives a useful picture of the relative outcomes of different scenarios.

Scenario 1 would maximize the goal of achieving conservation. However, it would not serve the other goal of efficiently reducing the cost of conservation. Scenario 2 furthers the goal of reducing economic impacts, but without any sensitivity to the fact that for some habitat areas the cost is relatively small so the incremental benefit of excluding that area is small (making it problematic to conclude that the benefit of exclusion outweighs the benefit of designation). Scenario 2 is also not sensitive to the fact that for most ESUs, eliminating all low- and medium-value habitat areas is likely to significantly impede conservation. While the second step of the test (application of biological judgment) would address this concern, it would not do so in an efficient way – that is, it would not

efficiently lead to the low-cost areas being favored for designation and the high cost areas favored for exclusion. For Scenario 2, it is unlikely that all of the potential reductions would be retained through the second step. The end result also may not be economically efficient unless there are additional iterative steps that allow for consideration of economic impacts within the context of the goal of achieving conservation.

In contrast, Scenario 3 is sensitive to the fact that excluding some low and medium areas will save less than excluding other low and medium areas. It is also sensitive to the fact that excluding all low and medium areas in all ESUs would not result in an efficient second step of the process. Based on these considerations, we adopted the two-step test, first applying the economic criteria described for Scenario 3 to develop a set of recommended exclusions. In the second step of the process, we asked the biological teams whether excluding any of the habitat areas identified in the first step would significantly impede conservation. The teams considered this question in the context of the exclusions being contemplated for military areas, Indian lands, and HCP lands; all of the areas eligible for exclusion based on economic impacts; and the information they had developed in providing the initial conservation ratings. Where the teams concluded that exclusion would significantly impede conservation, we have not recommended exclusion. The tables in Appendix D show the result of applying this two-step process.

We note that other approaches could be taken to economic exclusions and other policy considerations could be applied to reach a different result. For example, in the first step, different dollar thresholds could be selected, including a dollar threshold above which high-value areas would be considered for exclusion. Or in the second step, policy-makers might favor other goals over conservation.

The tables in Appendix D show the results of applying these thresholds. They indicate all of those watersheds determined eligible for exclusion in the first step of the process. The footnotes identify where the second step of the process resulted in a watershed that was eligible for exclusion not being excluded.

Determine whether the cumulative effect of the recommended exclusions will result in extinction of the species

Section 4(b)(2) does not allow the agency to exclude areas if exclusion will result in extinction of the species. Since we have not recommended excluding any habitat areas based on economic impacts if the exclusion would significantly impede conservation, we have determined for each ESU that the exclusion of the areas we recommend based on economic impacts will not significantly impede conservation. In the next section we discuss how we considered the economic exclusions in combination with the other types of exclusions to make this required finding for each ESU.

AREAS RECOMMENDED FOR EXCLUSION – BY ESU

Many of the habitat areas under consideration meet the definition of critical habitat for more than one ESU, that is, they have overlapping critical habitat. Also, in the Snake River basin, there are listed ESUs with critical habitat currently designated that are not part of this rulemaking (Snake River Fall Chinook, Snake River Spring/Summer Chinook, and Redfish Lake Sockeye). The habitat areas for some ESUs also overlap proposed critical habitat for the listed Bull Trout.

In areas of overlap, we could have decided that the critical habitat for one ESU would be designated first. Protection for the first ESU would then be part of the baseline for the second or third ESU, so there would be little impact from the subsequent designations. We decided against this approach for several reasons. The decision of which ESU went first could have a major effect on the incremental impact of the subsequent ESUs, creating an opportunity to manipulate the outcome. In addition, if one ESU were to recover and be de-listed, its critical habitat designation would also be gone, leaving the remaining designations in place. In contrast, an approach that considered the independent effect of each designation would accurately represent the situation if one of the designations were no longer to apply. Moreover, because of the cost-effectiveness framework we have adopted, so long as we do not count these designations as part of the baseline when we consider the benefit of designation for each ESU, we will still have an accurate picture of the relative benefits of designation versus the relative benefits of exclusion.

Similarly, we did not consider the existing critical habitat designations for Snake River salmon to diminish either the impacts or the benefits of designating critical habitat for Snake River steelhead. As with the overlapping designations, the cost-effectiveness framework we have adopted continues to give us a meaningful comparison of relative impacts and benefits. In addition, the agency has stated its intention to revisit the existing critical habitat designations for Snake River ESUs, if appropriate, following completion of related rulemaking (67 Fed. Reg. 6215, Feb. 11, 2002). Given the uncertainty that these designations will remain in place in their current configuration, we decided not to include them in the baseline.

One result of this decision is that there are some areas that are designated for one ESU but excluded for another, because the differing habitat needs may lead to an area being rated high-value for one ESU but medium- or low-value for another. In recommending exclusions, we did not make a separate effort to match exclusions. Consistent with our approach throughout, we considered the impacts of designation and the benefits of designation for each ESU based on its individual circumstances.

1. Puget Sound Chinook salmon

The Puget Sound Chinook ESU was listed as a threatened species in 1999 (64 FR 14308; March 24, 1999). The ESU includes all naturally spawned populations of Chinook

salmon from rivers and streams flowing into Puget Sound including the Strait of Juan de Fuca from the Elwha River, eastward, including rivers and streams flowing into Hood Canal, South Sound, North Sound and the Strait of Georgia in Washington). The agency recently conducted a review to update the ESU's status, taking into account new information and considering the net contribution of hatchery efforts in the ESU. We recently published the results of this review and concluded that Puget Sound Chinook salmon (including 26 hatchery programs) should remain listed as threatened (70 FR 37160; June 28, 2005).

There are 2,216 occupied stream miles meeting the definition of critical habitat for this ESU. These are grouped into habitat areas in 61 watersheds within the range of this ESU. Twelve habitat areas received a low rating, nine received a medium rating, and 40 received a high rating of conservation value to the ESU (NMFS 2005a). Nineteen nearshore marine areas (encompassing 2,376 miles) also received a rating of high conservation value. Figure D.1(a) shows a map of Puget Sound watersheds with habitat areas occupied by the ESU and eligible for designation.

Recovery Planning Status

A Technical Recovery Team (TRT) was formed in 2000 to assist recovery planning efforts in Puget Sound. The Puget Sound TRT has released technical reports describing independent populations of Chinook salmon in Puget Sound (Ruckelshaus et al. 2001, 2002, 2004). The Puget Sound TRT identified 22 independent Chinook populations: the North Fork Nooksack River, South Fork Nooksack River, Lower Skagit River, Upper Skagit River, Lower Sauk River, Suiattle River, Upper Sauk River, Cascade River, North Fork Stillaguamish River, South Fork Stillaguamish River, Skykomish River, Snoqualmie River, North Lake Washington, Cedar River, Green/Duwamish River, Puyallup River, White River, Nisqually River, Skokomish River, Dosewallips River, Dungeness River, and Elwha River. Some naturally spawning aggregations of Chinook were not recognized as part of these populations (e.g., the Deschutes River in South Puget Sound). The TRT concluded that Chinook salmon using smaller streams in south and central Puget Sound probably did not occur there in large numbers historically and were not independent populations. It is not clear whether these smaller streams are occupied due to recent hatchery releases or whether historically they supported small satellite "sink" populations that were dependent on larger independent "source" populations (Ruckelshaus et al. 2002; B. Graeber, NMFS, personal communication).

The Puget Sound TRT identified five geographic regions of diversity and correlated risk in Puget Sound that are intended to assist in evaluating ESU-wide recovery planning (Ruckelshaus et al. 2002). The regions are based on similarities in hydrographic, biogeographic, geologic, and catastrophic risk characteristics and where groups of populations have evolved in common (Ruckelshaus et al. 2002). The Puget Sound Chinook salmon ESU occupies all of these regions. Recovery planning will likely emphasize the need for a geographical distribution of viable populations across the range of such regions (Ruckelshaus et al. 2002, McElhany et al. 2003). From 2003 through early 2005, local planning groups in Puget Sound developed watershed assessments and specific recovery action plans for each watershed. The Biological Team considered the

TRT products in rating each watershed, but did not have the benefit of the watershed plans. We anticipate that, as recovery planning proceeds, we will have better information and may revise our recommendations regarding critical habitat designation.

Military Areas, Indian Lands, Lands with Habitat Conservation Plans

There are 12 facilities located within the range of the Puget Sound Chinook salmon ESU, controlled by the military, with Integrated Natural Resource Management Plans: (1) Naval Submarine Base, Bangor; (2) Naval Undersea Warfare Center, Keyport; (3)Naval Ordinance Center, Port Hadlock (Indian Island); (4) Naval Radio Station, Jim Creek; (5) Naval Fuel Depot, Manchester; (6) Naval Air Station Whidbey Island; (7) Naval Air Station, Everett; (8) Bremerton Naval Hospital; (9) Puget Sound Naval Shipyard; (10) Fort Lewis (Army); and (11) Pier 23 (Army). As described previously, and in separate documents, we have determined that the military's management of lands covered by these INRMPs provides benefits to the species. The occupied stream reaches within these military lands therefore do not qualify for designation pursuant to section 4(b)(1) of the ESA.

There are also 12 Navy security or restricted zones within the range of this ESU, and some of these overlap with INRMP areas. As described previously, we recommend designating a narrow nearshore zone in non-INRMP areas but excluding deeper nearshore waters (beyond mean lower low water) due to potential impacts on national security and our determination that the benefits of excluding these areas outweigh the benefits of designating them.

There are 13 Indian reservations within the range of Puget Sound Chinook: (1) Jamestown S'Klallam tribe, (2) Lower Elwha-Klallam tribe; (3) Lummi tribe; (4) Muckleshoot tribe; (5) Nisqually tribe; (6) Nooksack tribe; (7) Port Gamble S'Klallam tribe; (8) Puyallup tribe; (9) Skokomish tribe; (10) Squaxin Island tribe; (11) Swinomish tribe; (12) Tulalip tribe; and (13) Upper Skagit tribe. The amount of Indian land overlapping areas eligible for designation is identified in Table 5. As described previously, and in separate documents, we have determined that the benefits of excluding the habitat areas on these Indian lands outweigh the benefits of designating them.

There are two landowners with approved HCPs within the range of the Puget Sound Chinook ESU - Washington Department of Natural Resources and Green Diamond Resources Company. The amount of HCP land overlapping areas eligible for designation is identified in Table 5. As described previously, and in separate documents, we have determined that the benefits of excluding the habitat areas on these HCP lands outweigh the benefits of designating them.

Consideration of Economic Impacts and Recommendations for Exclusions

Table D.1 shows the estimated total and per capita local economic impacts for each of the habitat areas. Where an area contains both a connectivity corridor and tributary habitat, the table shows the impacts of designating each.

In summary, we recommend that 12 low conservation value habitat areas and four medium-value habitat areas be excluded in their entirety, and the tributary-only portions of one medium-value area with a high-value connectivity corridor be excluded from designation, because the economic benefits of exclusion outweigh the benefits of designation. We also recommend that tributaries only be excluded in one medium value The map in Figure D.1(b) shows those habitat areas being recommended for exclusion. They include 370 total stream miles, representing 17 percent of the total stream miles occupied by the ESU. The reduction in estimated economic impact is approximately 22 percent of the impact that would occur if all habitat areas (stream and nearshore) were designated.

We have concluded that exclusion of any of these areas alone or of all areas in combination, would not significantly impede conservation of the Puget Sound Chinook ESU.

Conclusion

After the exclusions discussed above (which are also summarized in Table 5), the habitat areas being recommended for designation include approximately 1,683 stream miles and approximately 2,182 marine nearshore miles. These habitat areas are well distributed through, and representative of, the five geographic regions of diversity and correlated risk identified by the Puget Sound TRT. The recommended critical habitat designation for the Puget Sound Chinook ESU will complement recovery planning efforts aimed at conserving the geographic distribution and diversity of the demographically independent Chinook populations in this ESU. Therefore, we conclude that the recommended exclusions will not result in extinction of the Puget Sound Chinook salmon ESU.

Table 5. Summary of Exclusions for Puget Sound Chinook Salmon

Conservation Value	Number of Watersheds or Nearshore Areas	Total Stream Miles of Eligible Habitat	Stream or Nearshore Miles Excluded From Designation			
			National Security Impacts[a]	Indian Lands	Habitat Conservation Plans	Economic
High	40	1,747	19	46	70	
High (nearshore)	19	2,376	48	146		
Medium	9	255			23	161
Low	12	214		<1	5	209

[a]These miles are ineligible for consideration because they overlap with DOD lands that are covered by an INRMP.

2. Lower Columbia River Chinook salmon

The Lower Columbia River Chinook ESU was listed as a threatened species in 1999. The ESU includes all naturally spawned populations of Chinook salmon from the Columbia River and its tributaries from its mouth at the Pacific Ocean upstream to a transitional point between Washington and Oregon east of the Hood River and the White Salmon River, and includes the Willamette River to Willamette Falls, Oregon, exclusive of spring-run Chinook salmon in the Clackamas River (64 FR 14308; March 24, 1999). The agency recently conducted a review to update the ESU's status, taking into account new information and considering the net contribution of artificial propagation efforts in the ESU. We recently published the results of this review and concluded that Lower Columbia River Chinook salmon (including 17 hatchery programs) should remain listed as threatened (70 FR 37160; June 28, 2005).

There are 1,655 occupied stream miles meeting the definition of critical habitat for this ESU. These are grouped into habitat areas in 48 watersheds within the range of the ESU. Four watersheds received a low rating, 13 received a medium rating, and 31 received a high rating of conservation value to the ESU (NMFS 2005a). The lower Columbia River corridor downstream of the spawning range was also considered to have a high conservation value. Figure D.2(a) shows a map of Lower River Columbia watersheds occupied by the ESU and eligible for designation.

Recovery Planning Status

The Willamette/Lower Columbia TRT identified 31 historical demographically independent Chinook salmon populations in this ESU (Myers et al. 2003). It is estimated that eight to ten historical populations in the ESU have been extirpated or nearly so. The TRT has grouped populations within the ESU into three life-history types (spring-, fall-, and late fall-run) and three ecological spawning zones (Coast Range, Cascade, and Columbia Gorge) (McElhany et al. 2002). Recovery planning will likely emphasize the need for a geographical distribution of viable populations across the range of life-history types and ecological zones (Ruckelshaus et al. 2002, McElhany et al. 2003). A draft recovery plan for the Washington management unit of this ESU was completed by the Lower Columbia Fish Recovery Board (LCFRB) and released by NMFS for public comment in April 2005. NMFS expects to use this plan as an interim regional recovery plan until a plan for the whole ESU is completed. A preliminary draft plan for Oregon areas of the ESU is expected by the end of 2005. The Biological Team considered the LCFRB plan and the TRT products in rating each habitat area, but did not have the benefit of regional recovery plans throughout the range of this ESU. We anticipate that, as recovery planning proceeds, we will have better information and may revise our recommendations regarding critical habitat designation.

Military Areas, Indian Lands, Lands with Habitat Conservation Plans

There are no lands controlled by the military or designated for its use within the range of Lower Columbia River Chinook. There are also no Indian reservations within this range. There are two landowners with an approved HCP within the range of the Lower Columbia River Chinook ESU - Washington Department of Natural Resources and West Fork Timber Company. The amount of HCP land overlapping areas eligible for

designation is identified in Table 6. As described previously, and in separate documents, we have determined that the benefits of excluding the habitat areas on these HCP lands outweigh the benefits of designating them.

Consideration of Economic Impacts and Recommendations for Exclusions

Table D.2 shows the estimated total and per capita local economic impacts for each of the habitat areas. Where an area contains both a connectivity corridor and tributary habitat, the table shows the impacts of designating each.

In summary, we recommend that four low-value habitat areas and five medium-value habitat areas be excluded in their entirety, and the tributary-only portions of one medium-value area with a high-value connectivity corridor be excluded from designation, because the economic benefits of exclusion outweigh the benefits of designation. The map in Figure D.2(b) shows those habitat areas being recommended for exclusion. They include 182 total stream miles, representing 11 percent of the total stream miles occupied by the ESU. The reduction in estimated economic impact is approximately 25 percent of the impact that would occur if all habitat areas were designated.

We have concluded that exclusion of any of these areas alone or of all areas in combination, would not significantly impede conservation of the Lower Columbia River Chinook ESU.

Conclusion

After the exclusions discussed above (which are also summarized in Table 6), the habitat areas being recommended for designation include approximately 1,311 stream miles occupied by this ESU. These habitat areas are well distributed through, and representative of, the ecological zones and life-history types identified by the Willamette/Lower Columbia TRT. The recommended critical habitat designation for the Lower Columbia River Chinook ESU will complement recovery planning efforts aimed at conserving the geographic distribution and diversity of the 21-23 extant Chinook populations in this ESU. Therefore, we conclude that the recommended exclusions will not result in extinction of the Lower Columbia River Chinook ESU.

Table 6. Summary of Exclusions for Lower Columbia River Chinook Salmon

Conservation Value	Number of Watersheds	Total Stream Miles of Eligible Habitat	Stream Miles Excluded From Designation			
			National Security Impacts	Indian Lands	Habitat Conservation Plans	Economic
High	31	1,171			87	
Medium	13	418			75	116
Low	4	66				66

3. Upper Willamette River Chinook salmon

The Upper Willamette River Chinook ESU was listed as a threatened species in 1999 (64 FR 14308; March 24, 1999). The ESU includes all naturally spawned populations of spring-run Chinook salmon in the Clackamas River and in the Willamette River, and its tributaries, above Willamette Falls, Oregon. The agency recently conducted a review to update the ESU's status, taking into account new information and considering the net contribution of artificial propagation efforts in the ESU. We recently published the results of this review and concluded that Upper Willamette River Chinook salmon (including seven hatchery programs) should remain listed as threatened (70 FR 37160; June 28, 2005).

There are 1,796 occupied stream miles meeting the definition of critical habitat for this ESU. These are grouped into habitat areas in 60 watersheds within the range of the ESU. Nineteen watersheds received a low rating, 18 received a medium rating, and 23 received a high rating of conservation value to the ESU (NMFS 2005a). The lower Willamette/ Columbia River corridor downstream of the spawning range was also considered to have a high conservation value. Figure D.3(a) shows a map of Upper Willamette watersheds occupied by the ESU and eligible for designation.

Recovery Planning Status

The Willamette/Lower Columbia TRT has identified seven historically demographically independent populations with a single run-type (spring-run fish) and a single ecological spawning zone (the Willamette River) (McElhany et al. 2002). The populations include: Clackamas, Molalla, North Santiam, South Santiam, Calapooia, McKenzie, and Middle Fork Willamette rivers. The TRT also noted that reports of "Chinook salmon in westside tributaries have continued to the present; however it is unlikely the abundance of spawners in any of these tributaries constitutes a [demographically independent population]." Recovery planning will likely emphasize the need for a geographical distribution of viable populations across the range of the ESU (Ruckelshaus et al. 2002, McElhany et al. 2003). A preliminary draft recovery plan for this ESU is expected by the end of 2005. This plan will be based on the Willamette subbasin plan, which was completed in May 2004. The Biological Team considered the TRT products in rating each watershed, but did not have the benefit of a recovery plan. We anticipate that, as recovery planning proceeds, we will have better information and may revise our recommendations regarding critical habitat designation.

Military Areas, Indian Lands, Lands with Habitat Conservation Plans

There are no lands controlled by the military or designated for its use within the range of lower Columbia Chinook. There are also no Indian reservations within this range, or lands covered by current habitat conservation plans directed at salmon conservation.

Consideration of Economic Impacts and Recommendations for Exclusions

Table D.3 shows the estimated total and per capita local economic impacts for each of the habitat areas. Where an area contains both a connectivity corridor and tributary habitat, the table shows the impacts of designating each.

In summary, we recommend that 11 low conservation value habitat areas and four medium-value areas be excluded in their entirety, and the tributary-only portions of eight low-value areas with high- or medium-value connectivity corridors be excluded from designation, because the economic benefits of exclusion outweigh the benefits of designation. The map in Figure D.3(b) shows those areas being recommended for exclusion. They include 217 total stream miles, representing 18 percent of the total stream miles occupied by the ESU. The reduction in estimated economic impact is approximately 20 percent of the impact that would occur if all habitat areas were designated.

We have concluded that exclusion of any of these areas alone or of all areas in combination, would not significantly impede conservation of the Upper Willamette River Chinook ESU.

Conclusion

After the exclusions discussed above (which are also summarized in Table 7), the habitat areas being recommended for designation include approximately 1,796 stream miles occupied by this ESU. These habitat areas are well distributed across the geographical area occupied by the seven demographically independent populations within this ESU. The recommended critical habitat designation for the Upper Willamette River Chinook ESU will complement recovery planning efforts aimed at conserving the geographic distribution and diversity of the ESU. Therefore, we conclude that the recommended exclusions will not result in extinction of the Upper Willamette River Chinook ESU.

Table 7. Summary of Exclusions for Upper Willamette River Chinook Salmon

Conservation Value	Number of Watersheds	Total Stream Miles of Eligible Habitat	Stream Miles Excluded From Designation			
			National Security Impacts	Indian Lands	Habitat Conservation Plans	Economic
High	23	1,022				
Medium	18	527				98
Low	19	247				226

4. Upper Columbia River spring-run Chinook salmon

The Upper Columbia River spring-run Chinook ESU was listed as an endangered species in 1999 (64 FR 14308; March 24, 1999). The ESU includes all naturally spawned

populations of Chinook salmon in all river reaches accessible to Chinook salmon in Columbia River tributaries upstream of the Rock Island Dam and downstream of Chief Joseph Dam in Washington, excluding the Okanogan River. The agency recently conducted a review to update the ESU's status, taking into account new information and considering the net contribution of artificial propagation efforts in the ESU. We recently published the results of this review and concluded that Upper Columbia River Chinook salmon (including six hatchery programs) should remain listed as endangered (70 FR 37160; June 28, 2005).

There are 1,002 occupied stream miles meeting the definition of critical habitat for this ESU. These are grouped into habitat areas in 31 watersheds within the range of this ESU. Five watersheds received a medium rating and 26 received a high rating of conservation value to the ESU (NMFS 2005a). The Columbia River corridor downstream of the spawning range was also considered to have a high conservation value. Figure D.4(a) shows a map of the Upper Columbia River watersheds occupied by the ESU and eligible for designation.

Recovery Planning Status

Three extant demographically independent populations of naturally spawning spring-run Chinook salmon are identified for this ESU: the Wenatchee, Entiat, and Methow River Basin population. The Interior Columbia Basin Technical Recovery Team (ICBTRT 2003 and 2005) placed these populations into a single major population grouping based on life-history type and ecological spawning zone. Recovery planning will likely emphasize the need for a viable geographical distribution of the three populations comprising this ESU (Ruckelshaus et al. 2002, McElhany et al. 2003). Subbasin assessments and plans have been completed for each subbasin through the Northwest Power and Conservation Council. Recovery planners are now using those subbasin plans and TRT products to develop ESA recovery plans. Draft recovery plans are expected by the end of 2005. The Biological Team considered the available subbasin plans and TRT products in rating each watershed. We anticipate that, as recovery planning proceeds, we will have better information and may revise our recommendations regarding critical habitat designation.

Military Areas, Indian Lands, Lands with Habitat Conservation Plans

There are no lands controlled by the military or designated for its use within the range of Upper Columbia River spring-run Chinook. There is one Indian reservation (Colville tribe) within the range of this ESU but there are no stream miles that meet the definition of critical habitat within the boundary of the reservation (two areas are occupied but do not contain physical or biological features essential to conservation of the ESU). There are no current habitat conservation plans in this area directed at salmon conservation.

Consideration of Economic Impacts and Recommendations for Exclusions

Table D.4 shows the estimated total and per capita local economic impacts for each of the habitat areas. Where an area contains both a connectivity corridor and tributary habitat, the table shows the impacts of designating each.

In summary, we recommend that the tributaries of four medium conservation value habitat areas containing high-value connectivity corridors be excluded because the economic benefits of exclusion outweigh the benefits of designation. The map in Figure D.4(b) shows those areas being recommended for exclusion. They include 28 total stream miles, representing 3 percent of the total stream miles occupied by the ESU. The reduction in estimated economic impact is approximately 19 percent of the impact that would occur if all habitat areas were designated.

We have concluded that exclusion of any of these areas alone or of all areas in combination, would not significantly impede conservation of the Upper Columbia River spring-run Chinook ESU.

Conclusion

After the exclusions discussed above (which are also summarized in Table 8), the habitat areas being recommended for designation include approximately 974 stream miles occupied by this ESU. These habitat areas are well distributed within and among the three demographically independent populations identified for this ESU. The recommended critical habitat designation for the Upper Columbia River spring-run Chinook ESU will complement recovery planning efforts aimed at conserving the geographic distribution and diversity of these populations. Therefore, we conclude that the recommended exclusions will not result in extinction of the Upper Columbia River spring-run Chinook ESU.

Table 8. Summary of Exclusions for Upper Columbia River Spring-run Chinook Salmon

Conservation Value	Number of Watersheds	Total Stream Miles of Eligible Habitat	Stream Miles Excluded From Designation			
			National Security Impacts	Indian Lands	Habitat Conservation Plans	Economic
High	26	966				
Medium	5	36				28
Low	0					

5. Hood Canal summer-run chum salmon

The Hood Canal summer-run chum salmon ESU was listed as a threatened species in 1999 (64 FR 14508; March 25, 1999). The ESU includes all naturally spawned populations of summer-run chum salmon in Hood Canal and its tributaries as well as populations in Olympic Peninsula rivers between Hood Canal and Dungeness Bay, Washington. The agency recently conducted a review to update the ESU's status, taking

into account new information and considering the net contribution of artificial propagation efforts in the ESU. We recently published the results of this review and concluded that Hood Canal summer-run chum salmon (including eight hatchery programs) should remain listed as threatened (70 FR 37160; June 28, 2005).

There are 88 occupied and unoccupied stream miles meeting the definition of critical habitat for this ESU. These are grouped into habitat areas in 12 watersheds within the spawning range of this ESU. There are also 386 miles in five marine nearshore zones within Puget Sound that meet the definition of critical habitat. Of the watersheds within the ESU boundaries, three received a medium rating, and nine received a high rating of conservation value to the ESU (NMFS 2005a). Five nearshore marine areas also received a rating of high conservation value. Figure D.6(a) shows a map of Hood Canal watersheds occupied by the ESU and eligible for designation.

Recovery Planning Status

Sixteen historical demographically independent populations of Hood Canal summer-run chum have been identified for this ESU: eight extant populations (the Union River, Lilliwaup Creek, Hamma Hamma River, Duckabush River, Dosewallips River, Big/Little Quilcene River, Snow and Salmon creeks, Jimmycomelately Creek populations), and eight extirpated or possibly extirpated populations (the Dungeness River, Big Beef Creek, Anderson Creek, Dewatto Creek, Tahuya River, Skokomish River, Finch Creek, and Chimacum Creek populations) (WDFW and Point No Point Treaty Tribes 2000). The Puget Sound TRT has identified 5 “geographic regions of diversity and correlated risk" in Puget Sound (Ruckelshaus et al. 2002). The regions are based on similarities in hydrographic, biogeographic, geologic, and catastrophic risk characteristics and where groups of populations have evolved in common (Ruckelshaus et al. 2002). The Hood Canal summer-run chum salmon ESU occupies two of these regions – the Strait of Juan de Fuca and Hood Canal. Recovery planning will likely emphasize the need for a geographical distribution of viable populations across the range of such regions in an ESU (Ruckelshaus et al. 2002, McElhany et al. 2003). Local recovery planners completed the Hood Canal and Strait of Juan de Fuca Summer Chum Recovery plan in late June of 2005. The Biological Team considered the available TRT products and a previously completed local recovery plan (WDFW and Point No Point Treaty Tribes 2000) in rating each watershed, but did not have the benefit of the more recent local recovery plan. We anticipate that, as recovery planning proceeds, we will have better information and may revise our recommendations regarding critical habitat designations.

Military Areas, Indian Lands, Lands with Habitat Conservation Plans

There are two facilities located within the range of the Hood Canal summer-run chum ESU, controlled by the military, with Integrated Natural Resource Management Plans: (1) Naval Submarine Base, Bangor; and (2) Naval Ordinance Center, Port Hadlock (Indian Island). As described previously, and in separate documents, we have determined that the military’s management of lands covered by these INRMPs provides benefits to the species. The occupied stream reaches within these military lands therefore do not qualify for designation pursuant to section 4(b)(1) of the ESA.

There are also six Navy security or restricted zones within the range of this ESU, and some of these overlap with INRMP areas. As described previously, we recommend designating a narrow nearshore zone in non-INRMP areas but excluding deeper nearshore waters (beyond mean lower low water) due to potential impacts on national security and our determination that the benefits of excluding these areas outweigh the benefits of designating them.

There are two Indian reservations within the range of Hood Canal summer-run chum – (1) Jamestown S'Klallam tribe, and (2) Skokomish tribe. The amount of Indian land overlapping areas eligible for designation is identified in Table 9. As described previously, and in separate documents, we have determined that the benefits of excluding the habitat areas on these Indian lands outweigh the benefits of designating them.

There is one landowner with an approved HCP within the range of the Hood Canal summer-run chum - Washington Department of Natural Resources. The amount of HCP land overlapping areas eligible for designation is identified in Table 9. As described previously, and in separate documents, we have determined that the benefits of excluding the habitat areas on these HCP lands outweigh the benefits of designating them.

Consideration of Economic Impacts and Recommendations for Exclusions

Table D.5 shows the estimated total and per capita local economic impacts for each of the habitat areas. Where an area contains both a connectivity corridor and tributary habitat, the table shows the impacts of designating each.

In summary, we recommend that none of the habitat areas be excluded from designation, because the economic benefits of exclusion do not outweigh the benefits of designation. As described previously, and in separate documents, we recommend excluding the 13 miles of habitat areas overlapping with Indian lands.

Conclusion

After the exclusions discussed above (which are also summarized in Table 9), the habitat areas being recommended for designation include approximately 88 stream miles occupied by this ESU and 8 stream miles that were unoccupied at the time of listing. These habitat areas are well distributed within and among the two geographic regions of diversity and correlated risk identified by the Puget Sound TRT. The recommended critical habitat designation for the Hood Canal summer-run chum ESU will complement recovery planning efforts aimed at conserving the geographic distribution and diversity of the eight extant populations in this ESU. Therefore, we conclude that the recommended exclusions will not result in extinction of the Hood Canal summer-run chum ESU.

Table 9. Summary of Exclusions for Hood Canal Summer-run Chum Salmon

Conservation Value	Number of Watersheds or Nearshore Areas	Total Stream Miles of Eligible Habitat	Stream or Nearshore Miles Excluded From Designation			
			National Security Impacts[a]	Indian Lands	Habitat Conservation Plans	Economic
High	9	60			4	
High (nearshore)	5	402	16	9		
Medium	3	28		4	1	
Low	0					

[a]These miles are ineligible for consideration because they overlap with DOD lands that are covered by an INRMP.

6. Columbia River chum salmon

The Columbia River chum salmon ESU was listed as a threatened species in 1999 (64 FR 14508; March 25, 1999). The ESU includes all naturally spawned populations of chum salmon in the Columbia River and its tributaries in Washington and Oregon (64 FR 14508; March 25, 1999). The agency recently conducted a review to update the ESU's status, taking into account new information and considering the net contribution of artificial propagation efforts in the ESU. We recently published the results of this review and concluded that Columbia River chum salmon (including three hatchery programs) should remain listed as threatened (70 FR 37160; June 28, 2005).

There are 715 occupied stream miles meeting the definition of critical habitat for this ESU. These are grouped into habitat areas in 20 watersheds within the range of the ESU. Of these watersheds, three received a medium rating, and 17 received a high rating of conservation value to the ESU (NMFS 2005a). The Columbia River corridor downstream of the spawning range was also considered to have a high conservation value. Figure D.6(a) shows a map of Columbia River watersheds occupied by the ESU and eligible for designation.

Recovery Planning Status

The Willamette/Lower Columbia River TRT identified 16 historical demographically independent populations of chum in the Columbia River: the Youngs Bay, Grays River, Big Creek, Elochoman River, Clatskanie River, Mill Creek, Scappoose Creek, Cowlitz River fall-run and summer-run, Kalama fall-run, Salmon Creek fall-run, Lewis River fall-run, Clackamas River fall-run, Washougal River fall-run, Sandy River fall-run, Lower Gorge tributaries fall-run, and the Upper Gorge tributaries fall-run populations (Myers et

al. 2003). All but two of these historical populations appear to have been extirpated, or nearly so. Although the historical record for Columbia River chum salmon is limited, it is clear that chum salmon were present in most tributaries to the lower Columbia River and to some extent were present in the mainstem (Myers et al. 2003). The Columbia River chum salmon ESU inhabits three ecological zones (Coast Range, Cascade, and Columbia Gorge) and contains a single life-history type (fall run). Recovery planning will likely emphasize the need for a geographical distribution of viable populations across the range of ecological zones (Ruckelshaus et al. 2002, McElhany et al. 2003). A draft recovery plan for the Washington management unit of this ESU was completed by the Lower Columbia Fish Recovery Board (LCFRB) and released by NMFS for public comment in April 2005. NMFS expects to use this plan as an interim regional recovery plan until a plan for the whole ESU is completed. A preliminary draft plan for Oregon areas of the ESU is expected by the end of 2005. The Biological Team considered LCFRB plan and the TRT products in rating each habitat area, but did not have the benefit of regional recovery plans throughout the range of this ESU. We anticipate that, as recovery planning proceeds, we will have better information and may revise our recommendations regarding critical habitat designation.

Military Areas, Indian Lands, Lands with Habitat Conservation Plans

There are no lands controlled by the military or designated for its use within the range of Columbia River chum. There are also no Indian reservations within this range. There is one landowner with an approved HCP within the range of the Columbia River chum ESU - Washington Department of Natural Resources. The amount of HCP land overlapping areas eligible for designation is identified in Table 10. As described previously, and in separate documents, we have determined that the benefits of excluding the habitat areas on these HCP lands outweigh the benefits of designating them.

Consideration of Economic Impacts and Recommendations for Exclusions

Table D.6 shows the estimated total and per capita local economic impacts for each of the habitat areas. Where an area contains both a connectivity corridor and tributary habitat, the table shows the impacts of designating each.

In summary, we recommend that one medium-value habitat area be excluded from designation because the economic benefits of exclusion outweigh the benefits of designation. The map in Figure D.6(b) shows the areas being recommended for exclusion. They include three stream miles, representing less than one percent of the total stream miles occupied by the ESU. The reduction in estimated economic impact is approximately 3 percent of the impact that would occur if all habitat areas were designated.

We have concluded that exclusion of any of these areas alone or of all areas in combination, would not significantly impede conservation of the Columbia River chum ESU.

Conclusion

After the exclusions discussed above (which are also summarized in Table 10), the habitat areas being recommended for designation include approximately 708 stream miles occupied by this ESU – nearly 100 percent of its present range. The recommended critical habitat designation for the Columbia River chum ESU will complement recovery planning efforts aimed at conserving the geographic distribution and diversity of the two extant populations in this ESU. Therefore, we conclude that the recommended exclusions will not result in extinction of the Columbia River chum ESU.

Table 10. Summary of Exclusions for Columbia River Chum Salmon

Conservation Value	Number of Watersheds	Total Stream Miles of Eligible Habitat	Stream Miles Excluded From Designation			
			National Security Impacts	Indian Lands	Habitat Conservation Plans	Economic
High	17	702			4	
Medium	3	13				3
Low	0					

7. Ozette Lake sockeye salmon

The Ozette Lake sockeye salmon ESU was listed as a threatened species in 1999 (64 FR 14528; March 25, 1999). The ESU includes all naturally spawned populations of sockeye salmon in Ozette Lake and streams and tributaries flowing into Ozette Lake, Washington. The agency recently conducted a review to update the ESU's status, taking into account new information and considering the net contribution of artificial propagation efforts in the ESU. We recently published the results of this review and concluded that Puget Sound Chinook salmon (including two hatchery programs) should remain listed as threatened (70 FR 37160; June 28, 2005).

There is one subbasin within the Ozette Lake sockeye ESU, composed of a single watershed. This watershed was rated as having a high conservation value to the ESU (NMFS 2005a). Figure D.7 shows a map of the Ozette Lake watershed occupied by the ESU.

Recovery Planning Status

The Puget Sound TRT considers the Ozette Lake sockeye ESU to be comprised of one historical population with multiple spawning aggregations (Ruckelshaus et al. 2001, 2002). A local technical team (the Lake Ozette Steering Committee) has developed initial technical assessments and preliminary recovery strategies. The Makah tribe intends to complete the technical analysis of the factors limiting recovery of Ozette Lake sockeye and develop an initial draft recovery plan for the ESU by the end of 2005.

NOAA Fisheries will support that effort with both technical and recovery planning staff assistance.

Military Areas, Indian Lands, Lands with Habitat Conservation Plans

There are no lands controlled by the military or designated for its use within the range of Ozette Lake sockeye ESU. There is one Indian reservation (Makah tribe) within the spawning range of this ESU. The amount of Indian land overlap relative to areas eligible for designation are identified in Table 11. As described previously, and in separate documents, we have determined that the benefits of excluding the habitat areas on this HCP's lands outweigh the benefits of designating them.

There is also one landowner with an approved HCP within the range of the Columbia River chum ESU -Washington Department of Natural Resources. The amount of HCP land overlap relative to areas eligible for designation are identified in Table 11. As described previously, and in separate documents, we have determined that the benefits of excluding the habitat areas on this HCP's lands outweigh the benefits of designating them.

As described previously, and in separate documents, we have determined that the benefits of excluding the habitat areas on these Indian lands outweigh the benefits of designating them.

Consideration of Economic Impacts and Recommendations for Exclusions

Table D.7 shows the estimated total and per capita local economic impacts for each of the habitat areas. Where an area contains both a connectivity corridor and tributary habitat, the table shows the impacts of designating each.

This ESU is composed of a single watershed which was rated as having a high conservation value. Only those areas on tribal land are recommended for exclusion; no exclusions are recommended based on economic impacts. We have concluded that exclusion of these areas would not significantly impede conservation of the Ozette Lake sockeye salmon ESU.

Conclusion

After the exclusions discussed above (which are also summarized in Table 11), the habitat areas being recommended for designation include approximately 41 miles of stream and lake habitat. The designated areas include approximately 93% of all occupied areas and most of the historical range of the species. Therefore, we conclude that the recommended exclusions will not result in extinction of the Ozette Lake sockeye ESU.

Table 11. Summary of Exclusions for Ozette Lake Sockeye Salmon

Conservation Value	Number of Watersheds	Total Stream Miles of Eligible	Stream Miles Excluded From Designation			
			National Security	Indian Lands	Habitat Conservation	Economic

		Habitat	Impacts		Plans	
High	1	44		<1	2	
Medium	0					
Low	0					

8. Upper Columbia River steelhead

The Upper Columbia River steelhead ESU was listed an endangered species in 1997 (62 FR 43937; August 18, 1997). The ESU includes all naturally spawned populations of steelhead in streams in the Columbia River Basin upstream from the Yakima River, Washington, to the U.S.-Canada border (62 FR 43937; August 18, 1997). The agency recently conducted a review to update the ESU's status, taking into account new information, evaluating component resident rainbow trout populations, and considering the net contribution of artificial propagation efforts in the ESU. We have proposed that Upper Columbia River *O. mykiss* (steelhead and rainbow trout, inclusive) be listed as threatened (69 FR 33102; June 14, 2004). Additionally, we have proposed that the listing include resident populations of *O. mykiss* below impassible barriers (natural and manmade) that co-occur with anadromous populations (69 FR 33102; June 14, 2004). We have also proposed that the listing include six artificial propagation programs considered part of the ESU (69 FR 33102; June 14, 2004). The final listing determination for all *O. mykiss* ESUs was extended by six months (70 FR 37219, June 28, 2005). The final critical habitat designation includes designations based on the final listing status as of the time of the designation. We will revise the critical habitat designations if necessary following a final listing determination.

There are 1,332 occupied stream miles meeting the definition of critical habitat for this ESU. These are grouped into habitat areas in 42 watersheds within the range of the ESU. Of these watersheds, three received a low rating, eight received a medium rating, and 31 received a high rating of conservation value to the ESU (NMFS 2005a). The Columbia River corridor downstream of the spawning range was also considered to have a high conservation value. Figure D.8. shows a map of Upper Columbia River watersheds occupied by the ESU and eligible for designation.

Recovery Planning Status

Five populations are identified for the Upper Columbia River *O. mykiss* ESU: the Wenatchee River, Methow River, Entiat River, Okanogan Basin, and Crab Creek populations. The Interior Columbia Basin Technical Recovery Team (ICBTRT 2003 and 2005) placed these populations into a single major population grouping based on life-history type and ecological spawning zone. Recovery planning will likely emphasize the need for a geographical distribution of viable populations across the range of the ESU (Ruckelshaus et al. 2002, McElhany et al. 2003, McClure 2004 [pers comm.]). Subbasin assessments and plans have been completed for each subbasin through the Northwest Power and Conservation Council. Recovery planners are now using those subbasin plans

and TRT products to develop ESA recovery plans. Draft recovery plans are expected by the end of 2005. The Biological Team considered the available subbasin plans and TRT products in rating each watershed. We anticipate that, as recovery planning proceeds, we will have better information and may revise our recommendations regarding critical habitat designation.

Military Areas, Indian Lands, Lands with Habitat Conservation Plans

There is one facility located within the range of the upper Columbia River steelhead ESU controlled by the military with an INRMP, the Yakima Training Center. As described previously, and in separate documents, we have determined that the military's management of lands covered by this INRMP provides benefits to the species. The occupied stream reaches within these military lands therefore are precluded from designation pursuant to section 4(b)(1) of the ESA.

There is one Indian reservation (Colville tribe) within the spawning range of the Columbia steelhead ESU. The amount of Indian land overlapping areas eligible for designation is identified in Table 12. As described previously, and in separate documents, we have determined that the benefits of excluding the habitat areas on these Indian lands outweigh the benefits of designating them.

There are no lands covered by current habitat conservation plans directed at salmon or steelhead conservation.

Description of Economic Impacts

Table D.8 shows the total and per capita local economic impacts for each of the habitat areas. Where an area contains both a connectivity corridor and tributary habitat, the table shows the impacts of designating each.

In summary, we recommend that two low conservation value habitat areas and one medium-value area be excluded in their entirety, and the tributary-only portions of one medium-value area with a high value connectivity corridor be excluded from designation, because the economic benefits of exclusion outweigh the benefits of designation. The map in Figure D.8(b) shows those habitat areas being recommended for exclusion. They include six total stream miles, representing less than one percent of the total stream miles occupied by the ESU. The reduction in estimated economic impact is 23 percent of the impact that would occur if all habitat areas were designated. Combined with the excluded habitat areas on Indian lands, and the lands precluded from designation by an INRMP, the total stream miles not recommended for designation represent approximately five percent of the total stream miles occupied by this ESU.

We have concluded that exclusion of any of these areas alone or of all areas in combination, would not significantly impede conservation of the Upper Columbia River steelhead ESU.

Conclusion

After the exclusions discussed above (which are also summarized in Table 12), the habitat areas being recommended for designation include approximately 1,262 stream miles occupied by this ESU. These habitat areas are well distributed across the geographical area occupied by the four identified populations. The recommended critical habitat designation for the upper Columbia River steelhead ESU will complement recovery planning efforts aimed at conserving the geographic distribution and diversity of the four populations in this ESU. Therefore, we conclude that the recommended exclusions will not result in extinction of the Upper Columbia River steelhead ESU.

Table 12. Summary of Exclusions for Upper Columbia River Steelhead

Conservation Value	Number of Watersheds	Total Stream Miles of Eligible Habitat	Stream Miles Excluded From Designation			
			National Security Impacts	Indian Lands	Habitat Conservation Plans	Economic
High	31	1,199	10	43		
Medium	8	121		2		4
Low	3	12		9		2

9. Snake River Basin steelhead

The Snake River Basin steelhead ESU was listed as a threatened species in 1997 (62 FR 43937; August 18, 1997). The ESU includes all naturally spawned populations of steelhead in streams in the Snake River Basin of southeast Washington, northeast Oregon, and Idaho. The agency recently conducted a review to update the ESU's status, taking into account new information, evaluating component resident rainbow trout populations, and considering the net contribution of artificial propagation efforts in the ESU. We have proposed that Snake River Basin *O. mykiss* (including steelhead and rainbow trout) remain listed as threatened (69 FR 33102; June 14, 2004). Additionally, we have proposed that the listing include resident populations of *O. mykiss* below impassible barriers (natural and manmade) that co-occur with anadromous populations. Recent genetic data also suggest that native resident *O. mykiss* above Dworshak Dam on the North Fork Clearwater River are part of this ESU. We have proposed that these native resident *O. mykiss* populations above Dworshak Dam on the North Fork Clearwater River also be considered part of the Snake River Basin *O. mykiss* ESU. We have also proposed that the listing include six artificial propagation programs considered part of the ESU. The final listing determination for all *O. mykiss* ESUs was extended by six months (70 FR 37219, June 28, 2005). The final critical habitat designation includes designations based on the final listing status as of the time of the designation. We will revise the critical habitat designations if necessary following a final listing determination.

There are 8,225 occupied stream miles meeting the definition of critical habitat for this ESU. These are grouped into habitat areas in 289 watersheds within the range of this ESU. Of these watersheds, 14 received a low rating, 44 received a medium rating, and 231 received a high rating of conservation value to the ESU (NMFS 2005a). The Columbia River corridor downstream of the spawning range was also considered to have a high conservation value. Figure D.9 shows a map of Snake River Basin watersheds occupied by the ESU and eligible for designation.

Recovery Planning Status

The Interior Columbia Basin TRT (ICBTRT 2003 and 2005) has identified 24 demographically independent populations in 5 "major groupings" in the Snake River Basin *O. mykiss* ESU: the Lower Snake group (including the Tucannon River and Asotin Creek populations); Clearwater group (including the Lower Clearwater, South Fork, Lolo Creek, Lochsa River, and Selway River populations); Grande Ronde group (including the Lower Grande Ronde, Joseph Creek, Wallowa River, and Upper Grande Ronde populations); Salmon River group (including the Little Salmon, South Fork, Secesh River, Chamberlain Creek, Big/Camas/Loon, Upper Middle Fork, Panther Creek, North Fork, Lemhi River, Pahsimeroi River, East Fork, and Upper mainstem populations); and Imnaha group (including the Imnaha River population). Despite geographic separation from other spawning areas, the TRT did not identify Hells Canyon as an independent population but noted that maintaining this area may be important for ESU viability and other recovery goals. The groupings of populations are based on similarities in genetic distances, distances between spawning aggregates, life history, and habitat or environmental considerations. Recovery planning will likely emphasize the need for a geographical distribution of viable populations across the range of such groupings in an ESU (Ruckelshaus et al. 2002, McElhany et al. 2003, McClure 2004 [pers comm.]). Subbasin assessments and plans have been completed for each subbasin through the Northwest Power and Conservation Council. Recovery planners are now using those subbasin plans and TRT products to develop ESA recovery plans. Draft recovery plans are expected by the end of 2005. The Biological Team considered the available subbasin plans and TRT products in rating each watershed. We anticipate that, as recovery planning proceeds, we will have better information and may revise our recommendations regarding critical habitat designation.

Military Areas, Indian Lands, Lands with Habitat Conservation Plans

There are no lands controlled by the military or designated for its use within the range of the Snake River Basin steelhead ESU. There is one Indian reservation (Nez Perce tribe) within the spawning range of this ESU. The amount of Indian land overlapping areas eligible for designation is identified in Table 13. As described previously, and in separate documents, we have determined that the benefits of excluding the habitat areas on these Indian lands outweigh the benefits of designating them.

Consideration of Economic Impacts and Recommendations for Exclusions

Table D.9 shows the estimated total and per capita local economic impacts for each of the habitat areas. Where an area contains both a connectivity corridor and tributary habitat, the table shows the impacts of designating each.

In summary, we recommend that seven low conservation value habitat areas and four medium-value areas be excluded in their entirety, and the tributary-only portions of two low-value areas be excluded, because the economic benefits of exclusion outweigh the benefits of designation. The map in Figure D.9(a) shows those areas being recommended for exclusion. Including the tribal lands recommended for exclusion, a total of approximately 173 occupied stream miles are being recommended for exclusion from designation, representing approximately two percent of the total stream miles occupied by the ESU. The reduction in estimated economic impact is approximately three percent of the impact that would occur if all habitat areas were designated.

We have concluded that exclusion of any of these areas alone or of all areas in combination, would not significantly impede conservation of the Snake River steelhead ESU.

Conclusion

After the exclusions discussed above (which are also summarized in Table 13), the habitat areas being recommended for designation include approximately 8,049 stream miles occupied by this ESU. These habitat areas are well distributed across the geographical area occupied by the 25 demographically independent populations within this ESU. The recommended critical habitat designation for the Snake River Basin steelhead ESU will complement recovery planning efforts aimed at conserving the geographic distribution and diversity of the ESU. Therefore, we conclude that the recommended exclusions will not result in extinction of the Snake River steelhead ESU.

Table 13. Summary of Exclusions for Snake River Steelhead

Conservation Value	Number of Watersheds	Total Stream Miles of Eligible Habitat	Stream Miles Excluded From Designation			
			National Security Impacts	Indian Lands	Habitat Conservation Plans	Economic
High	231	7,598		27		
Medium	44	462		12		27
Low	14	165				107

10. Middle Columbia River steelhead

The Middle Columbia River steelhead ESU was listed as a threatened species in 1999 (64 FR 14517; March 25, 1999). The ESU includes all naturally spawned populations of steelhead in streams from above the Wind River, Washington, and the Hood River, Oregon (exclusive), upstream to, and including, the Yakima River, Washington,

excluding steelhead from the Snake River Basin. The agency recently conducted a review to update the ESU's status, taking into account new information, evaluating component resident rainbow trout populations, and considering the net contribution of artificial propagation efforts in the ESU. We have proposed that Middle Columbia River *O. mykiss* (including steelhead and rainbow trout) remain listed as threatened (69 FR 33102; June 14, 2004). Additionally, we have proposed that the listing include resident populations of *O. mykiss* below impassible barriers (natural and manmade) that co-occur with anadromous populations. We have also proposed that the listing include seven artificial propagation programs considered part of the ESU (69 FR 33102; June 14, 2004). The final listing determination for all *O. mykiss* ESUs was extended by six months (70 FR 37219, June 28, 2005). The final critical habitat designation includes designations based on the final listing status as of the time of the designation. We will revise the critical habitat designations if necessary following a final listing determination.

There are 6,529 occupied stream miles meeting the definition of critical habitat for this ESU. These are grouped into habitat areas in 114 watersheds within the range of this ESU. Of these watersheds, nine received a low rating, 24 received a medium rating, and 81 received a high rating of conservation value to the ESU (NMFS 2005a). The Columbia River corridor downstream of the spawning range was also considered to have a high conservation value. Figure D.10 shows a map of the Middle Columbia River watersheds occupied by the ESU and eligible for designation.

Recovery Planning Status

The Interior Columbia Basin TRT (ICBTRT 2003 and 2005) has identified 17 extant demographically independent populations: the Fifteenmile Creek, Deschutes River – westside, Deschutes River – eastside, John Day River lower mainstem tributaries, South Fork John Day River, John Day River upper mainstem, Middle Fork John Day River, North Fork John Day River, Umatilla River, Walla Walla River, Touchet River, Rock Creek, Klickitat River, Toppenish Creek, Satus Creek, Naches River, and Yakima River upper mainstem populations. The historical White Salmon River population was extirpated with the construction of Condit Dam. The TRT arranged these populations into four major groups in this recovery planning area: (1) Cascades Eastern Slope Tributaries, (2) John Day River, (3) Umatilla and Walla Walla Rivers, and (4) Yakima River. These groupings are based on genetic and ecological characteristics, the proximity of major drainages, and distances between spawning aggregations. Recovery planning will likely emphasize the need for a geographical distribution of viable populations across the range of population groupings (Ruckelshaus et al. 2002, McElhany et al. 2003). Subbasin assessments and plans have been completed for each subbasin through the Northwest Power and Conservation Council. Recovery planners are now using those subbasin plans and TRT products to develop ESA recovery plans. Draft recovery plans are expected by the end of 2005. The Biological Team considered the available subbasin plans and TRT products in rating each watershed. We anticipate that, as recovery planning proceeds, we will have better information and may revise our recommendations regarding critical habitat designation.

Military Areas, Indian Lands, Lands with Habitat Conservation Plans

There are no lands controlled by the military or designated for its use within the range of the Middle Columbia River steelhead ESU. There are also no lands covered by current habitat conservation plans directed at salmon or steelhead conservation. There are three Indian reservations within the spawning range of this ESU: (1) Yakama tribe; (2) Umatilla tribe; and (3) Warm Springs tribe. The amount of Indian land overlapping areas eligible for designation is identified in Table 14. As described previously, and in separate documents, we have determined that the benefits of excluding the habitat areas on these Indian lands outweigh the benefits of designating them.

Consideration of Economic Impacts and Recommendations for Exclusions

Table A.10 shows the estimated total and per capita local economic impacts for each of the habitat areas. Where an area contains both a connectivity corridor and tributary habitat, the table shows the impacts of designating each.

In summary, we recommend that six low conservation value habitat areas and one medium-value area be excluded in their entirety, and the tributary-only portions of two low- and 2 medium-value areas with high-value connectivity corridors be excluded from designation, because the economic benefits of exclusion outweigh the benefits of designation. The map in Figure D.10(a) shows those areas being recommended for exclusion. They include 115 total stream miles, representing approximately two percent of the total stream miles occupied by the ESU. The reduction in estimated economic impact is approximately 10 percent of the impact that would occur if all habitat areas were designated. Including the tribal lands recommended for exclusion, a total of 714 occupied stream miles are being recommended for exclusion from designation, representing approximately 11 percent of the total stream miles occupied by the ESU.

We have concluded that exclusion of any of these areas alone or of all areas in combination, would not significantly impede conservation of the Middle Columbia River steelhead ESU.

Conclusion

After the exclusions discussed above (which are also summarized in Table 14), the habitat areas being recommended for designation include approximately 5,815 stream miles occupied by this ESU. These habitat areas are well distributed across the geographical area occupied by the 16 extant demographically independent populations within this ESU. The recommended critical habitat designation for the Middle Columbia River steelhead ESU will complement recovery planning efforts aimed at conserving the geographic distribution and diversity of the ESU. Therefore, we conclude that the recommended exclusions will not result in extinction of the Middle Columbia River steelhead ESU.

Table 14. Summary of Exclusions for Middle Columbia River Steelhead

Conservation Value	Number of Watersheds	Total Stream Miles of	Stream Miles Excluded From Designation			
			National	Indian	Habitat	Economic

		Eligible Habitat	Security Impacts	Lands	Conservation Plans	
High	81	5,805		535		
Medium	24	588		63		56
Low	9	136		1		59

11. Lower Columbia River steelhead

The Lower Columbia River steelhead ESU was listed as threatened in 1997 (62 FR43937; August 18, 1997). The ESU includes all naturally spawned populations of steelhead in streams and tributaries to the Columbia River between the Cowlitz and Wind Rivers, Washington (inclusive), and the Willamette and Hood Rivers, Oregon (inclusive). Excluded are steelhead in the upper Willamette River Basin above Willamette Falls and steelhead from the Little and Big White Salmon Rivers in Washington. We have recently conducted a review to update the ESU's status, taking into account new information, evaluating component resident rainbow trout populations, and considering the net contribution of artificial propagation efforts in the ESU. We have proposed that Lower Columbia River *O. mykiss* remain listed as threatened (69 FR 33102; June 14, 2004). Additionally, we have proposed that the listing include resident populations of *O. mykiss* below impassible barriers (natural and manmade) that co-occur with anadromous populations. We have also proposed that the listing include ten artificial propagation programs considered part of the ESU. The final listing determination for all *O. mykiss* ESUs was extended by six months (70 FR 37219, June 28, 2005). The final critical habitat designation includes designations based on the final listing status as of the time of the designation. We will revise the critical habitat designations if necessary following a final listing determination.

There are 2,673 occupied stream miles meeting the definition of critical habitat for this ESU. These are grouped into habitat areas in 42 watersheds within the range of the Lower Columbia River steelhead ESU. Of these watersheds, two received a low rating, 11 received a medium rating, and 29 received a high rating of conservation value to the ESU (NMFS 2005a). The Columbia River corridor downstream of the spawning range was also considered to have a high conservation value. Figure D.11(a) shows a map of Upper Willamette watersheds occupied by the ESU and eligible for designation.

Recovery Planning Status

The Willamette-Lower Columbia River TRT has identified 23 historical demographically independent populations of Lower Columbia River steelhead: 18 Western Cascade Range tributaries populations (the Cispus River winter-run, Tilton River winter-run, Upper Cowlitz River winter-run, Lower Cowlitz River winter-run, North Fork Toutle River winter-run, South Fork Toutle River winter-run, Coweeman River winter-run, Kalama River winter-run, Kalama River winter-run, Kalama River summer-run, North Fork Lewis River winter-run, East Fork Lewis River winter-run, North Fork Lewis River summer-run, East Fork Lewis River summer-run, Clackamas River winter-run, Salmon

Creek winter-run, Sandy River winter-run, Washougal River winter-run, Washougal River summer run populations); and five Columbia River Gorge tributaries populations (the Lower Gorge tributaries winter-run, Upper Gorge tributaries winter-run, Wind River summer-run, Hood River winter-run, and Hood River summer-run populations) (Myers et al. 2003). The TRT has identified two life-history types (summer- and winter-run steelhead) and two ecological spawning zones (Cascade and Columbia Gorge) (McElhany et al. 2002). Recovery planning will likely emphasize the need for a geographical distribution of viable populations across the range of such strata in the ESU (Ruckelshaus et al. 2002, McElhany et al. 2003). A draft recovery plan for the Washington management unit of this ESU was completed by the Lower Columbia Fish Recovery Board (LCFRB) and released by NMFS for public comment in April 2005. NMFS expects to use this plan as an interim regional recovery plan until a plan for the whole ESU is completed. A preliminary draft plan for Oregon areas of the ESU is expected by the end of 2005. The Biological Team considered LCFRB plan and the TRT products in rating each habitat area, but did not have the benefit of regional recovery plans throughout the range of this ESU. We anticipate that, as recovery planning proceeds, we will have better information and may revise our recommendations regarding critical habitat designation.

Military Areas, Indian Lands, Lands with Habitat Conservation Plans

There are no lands controlled by the military or designated for its use within the range of lower Columbia River steelhead. There are also no Indian reservations within this range. There are two landowners with approved HCPs within the range of the lower Columbia River steelhead ESU - Washington Department of Natural Resources and West Fork Timber Company. The amount of HCP land overlapping areas eligible for designation is identified in Table 15. As described previously, and in separate documents, we have determined that the benefits of excluding the habitat areas on these HCP lands outweigh the benefits of designating them.

Consideration of Economic Impacts and Recommendations for Exclusions

Table A.11 shows the total and per capita local economic impacts for each of the habitat areas. Where an area contains both a connectivity corridor and tributary habitat, the table shows the impacts of designating each.

In summary, we recommend that one low conservation value habitat area and three medium-value areas be excluded in their entirety, and the tributary-only portions of one low-value area with a high-value connectivity corridor be excluded from designation, because the economic benefits of exclusion outweigh the benefits of designation. The map in Figure D.11 shows those habitat areas being recommended for exclusion from designation as critical habitat. They include 225 total stream miles, representing eight percent of the total stream miles occupied by the ESU. The reduction in estimated economic impact is approximately 20 percent of the impact that would occur if all habitat areas were designated.

We have concluded that exclusion of any of these areas alone or of all areas in combination, would not significantly impede conservation of the Lower Columbia River steelhead ESU.

Conclusion

After the exclusions discussed above (which are also summarized in Table 15), the habitat areas being recommended for designation include approximately 2,339 stream miles occupied by this ESU. These habitat areas are well distributed across the geographical area of the two life-history types and two ecological spawning zones identified by the TRT. The recommended critical habitat designation for the Lower Columbia River steelhead ESU will complement recovery planning efforts aimed at conserving the geographic distribution and diversity of the ESU. Therefore, we conclude that the recommended exclusions will not result in extinction of the Lower Columbia River steelhead ESU.

Table 15. Summary of Exclusions for Lower Columbia River Steelhead

Conservation Value	Number of Watersheds	Total Stream Miles of Eligible Habitat	Stream Miles Excluded From Designation			
			National Security Impacts	Indian Lands	Habitat Conservation Plans	Economic
High	29	1,998			84	
Medium	11	641			41	176
Low	2	34				34

12. Upper Willamette steelhead

The Upper Willamette River steelhead ESU was listed as a threatened species in 1999 (64 FR 14517; March 25, 1999). The ESU includes all naturally spawned populations of winter-run steelhead in the Willamette River, Oregon, and its tributaries upstream from Willamette Falls to the Calapooia River (inclusive). The agency recently conducted a review to update the ESU's status, taking into account new information, evaluating component resident rainbow trout populations, and considering the net contribution of artificial propagation efforts in the ESU. We have proposed that Upper Willamette River *O. mykiss* remain listed as threatened (69 FR 33102; June 14, 2004). Additionally, we have proposed that the listing include resident populations of *O. mykiss* below impassible barriers (natural and manmade) that co-occur with anadromous populations. Although there are no obvious physical barriers separating populations upstream of the Calapooia from those lower in the basin, resident *O. mykiss* in these upper basins are quite distinctive both phenotypically and genetically and are not considered part of the ESU. This ESU does not include any artificially propagated *O. mykiss* stocks that reside within

the historical geographic range of the ESU. Hatchery summer steelhead occur in the Willamette Basin, but are an out-of-basin stock that is not included as part of the ESU.

There are 1,830 occupied stream miles meeting the definition of critical habitat for this ESU. These are grouped into habitat areas in 38 watersheds within the range of the upper Willamette River steelhead ESU. Seventeen habitat areas received a low rating, six received a medium rating, and 15 received a high rating of conservation value to the ESU (NMFS 2005a). The Columbia River corridor downstream of the spawning range was also considered to have a high conservation value. Figure D.12(a) shows a map of Upper Willamette watersheds occupied by the ESU and eligible for designation. The final listing determination for all *O. mykiss* ESUs was extended by six months (70 FR 37219, June 28, 2005). The final critical habitat designation includes designations based on the final listing status as of the time of the designation. We will revise the critical habitat designations if necessary following a final listing determination.

Recovery Planning Status

The Willamette-Lower Columbia River TRT has identified four historical demographically independent populations of Upper Willamette River steelhead: the Mollala River, North Santiam River, South Santiam River, and Calapooia River populations (Myers et al. 2003). The TRT also notes that spawning winter-run steelhead have been observed in the Westside tributaries to the Upper Willamette River, however, the Westside tributaries are not considered to have historically constituted a demographically independent population (Myers et al. 2003). The TRT has determined that the Upper Willamette River *O. mykiss* ESU populations comprise a single life-history type (winter-run fish) and ecological zone (Willamette River) (McElhany et al. 2002). Recovery planning will likely emphasize the need for a geographical distribution of viable populations across the geographical range of the four populations in this ESU (Ruckelshaus et al. 2002, McElhany et al. 2003). A preliminary draft recovery plan for this ESU is expected by the end of 2005. This plan will be based on the Willamette subbasin plan, which was completed in May 2004. The Biological Team considered the TRT products in rating each watershed, but did not have the benefit of a recovery plan. We anticipate that, as recovery planning proceeds, we will have better information and may revise our recommendations for regarding critical habitat designation.

Military Areas, Indian Lands, Lands with Habitat Conservation Plans

There are no lands controlled by the military or designated for its use within the range of upper Willamette River steelhead. There are also no lands covered by current habitat conservation plans directed at salmon or steelhead conservation. There is one Indian reservation (Grand Ronde tribe) within the spawning range of the upper Willamette River steelhead ESU. The amount of Indian land overlapping areas eligible for designation is identified in Table 16. As described previously, and in separate documents, we have determined that the benefits of excluding the habitat areas on these Indian lands outweigh the benefits of designating them.

Consideration of Economic Impacts and Recommendations for Exclusions

Table A.13 shows the total and per capita local economic impacts for each of the habitat areas. Where an area contains both a connectivity corridor and tributary habitat, the table shows the impacts of designating each.

In summary, we recommend that nine low conservation value habitat areas be excluded in their entirety, and the tributary-only portions of eight low-value areas with high- or medium-value connectivity corridors be excluded from designation, because the economic benefits of exclusion outweigh the benefits of designation. The map in Figure D.12(b) illustrates those areas being recommended for exclusion. They include 543 stream miles, representing 30 percent of the total stream miles occupied by the ESU. The reduction in estimated economic impact is approximately 30 percent of the impact that would occur if all habitat areas were designated.

We have concluded that exclusion of any of these areas alone or of all areas in combination, would not significantly impede conservation of the Upper Willamette River steelhead ESU.

Conclusion

After the exclusions discussed above (which are also summarized in Table 16), the habitat areas being recommended for designation include approximately 1,276 stream miles occupied by this ESU. These habitat areas are well distributed across the geographical area occupied by the four demographically independent populations within this ESU. The recommended critical habitat designation for the Upper Willamette River steelhead ESU will complement recovery planning efforts aimed at conserving the geographic distribution and diversity of the ESU. Therefore, we conclude that the recommended exclusions will not result in extinction of the Upper Willamette River steelhead ESU.

Table 16. Summary of Exclusions for Upper Willamette River Steelhead

Conservation Value	Number of Watersheds	Total Stream Miles of Eligible Habitat	Stream Miles Excluded From Designation			
			National Security Impacts	Indian Lands	Habitat Conservation Plans	Economic
High[a]	15	803				
Medium	6	506		9		45
Low	17	521		2		498

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APPENDIX A: NATIONAL SECURITY MEMO

APPENDIX B: INDIAN LANDS MEMO

APPENDIX C: HCP MEMO

APPENDIX D: ECONOMIC EXCLUSION TABLES AND MAPS